ASSESSMENT OF HIGHER ORDER THINKING SKILLS IN A LITERATURE BASED CURRICULUM: CHALLENGES AND GUIDELINES

By

Karen Debra Guth

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SUPERVISOR: PROFESSOR MM NIEMAN

CO-SUPERVISOR: PROFESSOR GD KAMPER

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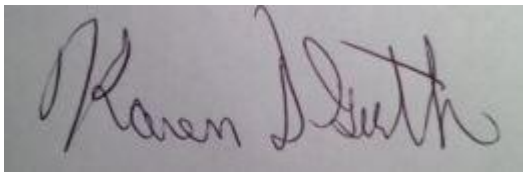
DECLARATION

Student Number: 49022326

I declare that *ASSESSMENT OF HIGHER ORDER THINKING SKILLS IN A LITERATURE BASED CURRICULUM: CHALLENGES AND GUIDELINES* is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete reference.

I further declare that I have not previously submitted this work, or part of it, for examination at UNISA for another qualification or at any other higher education institution.



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> *"The greatest thing a human soul ever does in this world is to see something. To see clearly is poetry, prophecy and religion, all in one."*

DEDICATION

This research is dedicated to my grandfather Sam Friedman, may his memory always be for a blessing, who from the time I could talk was asking me to defend my ideas, be sceptical about things I read and hear, to develop my mind and to think. It was at his table that I learned the importance of higher order thinking. These skills have carried me through the maze of conflicting information and arguments one encounters in life. They have enabled me to become a person open to different ideas but strong in my convictions because those beliefs were born out of a process of synthesis and analysis.

ABSTRACT

The study focused on pertinent challenges and key guidelines in introducing and assessing students' higher order thinking skills (HOTS) in a literature based English foreign language (EFL) curriculum. A curricular initiative in Israel, namely to integrate HOTS in the teaching and learning of literature in the high school EFL classes, prompted this study to measure its effectiveness on students' abilities to understand and apply the HOTS in their reading and writing. This mixed-methods study dealt with the following research questions: Are HOTS innate skills or must they be purposefully taught in order for students to learn and to apply them?

To what extent has 10th and 11th grade EFL Israeli students' ability to apply HOTS to their bridging essays, after completing two years in the English literature programme, been improved?

How accurately could students demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply them in the areas of reading and writing?

The overall key findings showed that; HOTS must be taught and practiced in order for students to learn and to apply them and that teaching students to use HOTS will improve their reading and writing capabilities in regard to higher order thinking as well as their understanding of specific HOTS. It was also found that students enjoy the challenge of infusing HOTS into a literature curriculum and expressing what they learn in their writing. They are consequently motivated to learn when they are challenged with a programme that infuses HOTS into an EFL literature curriculum.

Implications of the findings are that the subject specific approach and infusion method for teaching HOTS are successful in the EFL classroom. The findings provide a novel contribution to the study of HOTS pedagogy within a literature based EFL curriculum programme.

Recommendations for further studies are made, particularly on HOTS vis-à-vis weaker EFL students as well as on examining different writing formats, such as opinion essays, to determine if HOTS are transferring to other types of writing after students' participation in this curricular initiative.

Key words: Higher order thinking skills (HOTS); Lower order thinking skills (LOTS); Bridging question; Bridging essay; Critical thinking; Surface structure; Deep structure; Communicative language teaching; Literature teaching; English Foreign Language

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CHAPTER 1
INTRODUCTION STATEMENT OF THE PROBLEM AND OVERVIEW OF THE STUDY

1.1 INTRODUCTION

If students are to be thoroughly prepared for post high school programmes and the job market it is important that higher order thinking skills (HOTS) form part of the curriculum (Zohar, Degani & Vaaknin 2001:469). Eisner (2002:12) states that if the development of children's' higher order thinking abilities is not fostered in today's challenging society, there is a risk of creating future citizens who lack the skills to appraise different situations and problems from many perspectives and who have a literalist view of all of the material presented before them.

When students are not presented with a wide variety of perspectives and the tools to appraise those perspectives, a parochial or simplistic analysis of the problem is the result. In other words, if school curricula neglect the teaching of higher order thinking skills (HOTS) the inevitable outcome is ignorance (Eisner 2002:15). Learning HOTS must lead individuals to use reasoning abilities in real world situations and to exercise what Norris (1985:5) refers to as a "critical spirit".

Norris (1985:1) postulates that whether it is popular or not, schools must teach HOTS because that is what it means to be educated; having the ability to think critically. Furthermore, Siegel (1980:14) emphasises that not only is the ability to think critically a fundamental attribute of an educated person, but that students have a moral right to be taught to question, challenge and to demand reasons for what they are learning. This will enable them, in the final analysis, to choose for themselves what to believe and how to act.

Freseman (1990:26) states that in both school settings and in the world outside of school, it is crucial for people to have skills in evaluating, comparing

and contrasting, analysing and questioning. Students should therefore be able to think for themselves and should not become “addicted” to being told what to think and what to do.

Willingham (2007:15-16) refers to the challenges associated with the teaching of higher order thinking skills by explaining that critical thinking is not a skill at all. There is not a set of HOTS (higher order thinking skills) that can be acquired and deployed regardless of context. People can engage in some types of HOTS without training, but even with extensive training, they will sometimes fail to think critically. Although, research done by De Corte’s Competence, Learning, Intervention and Assessment (CLIA) educational design model (De Corte & Masui 2009:1), shows that students who were taught HOTS were more successful in their ability to apply and to transfer those skills to other new and challenging environments (De Corte & Masui 2009:9).

Willingham (2007:16) postulates that HOTS depend upon domain knowledge and practice. Thus, even though humans have the ability to think, just like all of the abilities with which they are born, people may depend on their knowledge and experience to develop those innate abilities.

Although human beings are born with the ability to think and to reason, to think critically one must have knowledge. Critical thinking cannot occur in a complete vacuum; it requires individuals to apply what they know about the subject matter as well as their common sense and experience (Halvorsen 2005:5). Halvorsen (2005:5) therefore agrees with this theory and argues that HOTS are best taught in the context of a subject.

In Israel the implementation and integration of HOTS into the educational curriculum was formally initiated with a programme entitled, “Pedagogical Horizon for Learning”, in 2007. The aim of the new policy, which was delineated in an article by Zohar (2010:3), was to move from rote learning and routine problem solving towards instruction that emphasises thinking. As Zohar (2010:2) states in the introduction to the policy, “Rather than teaching

the material at the lower cognitive levels requiring memorisation, we recommend teaching it at higher cognitive levels that involve thinking strategies. This method gives rise to understanding performance abilities".

The policy thus envisaged moving the whole educational system towards a focus on higher order thinking and thoughtful understanding. Such a move must consider the knowledge gained from previous projects but it must also lean on strategies for implementing systemic educational change. Implementing the goals of the "Pedagogical Horizons for Learning", on a national scale, requires simultaneous work on three-dimensions: (a) curriculum, learning materials and standards; (b) professional development and (c) assessment (Zohar 2006:77).

In 2010, the Ministry of Education English Inspectorate instituted a new programme for EFL students across the country, which incorporated HOTS as part of a literature curriculum. The new plan aimed to give pupils tools to analyse literary texts and nurture extensive student engagement in reading and writing exercises and to reintroduce English literature into the high school curriculum (Lifschitz 2008:108).

The rationale for using English literature in EFL classes as a vehicle for teaching HOTS is that in the process of understanding the literary text one naturally must use higher order thinking skills. Therefore, the teacher has the advantage of helping the students to acknowledge and understand how the HOTS help them to interpret the literary piece. Widdowson (2003:29) emphasises that through the process of understanding the varied meanings of a literary piece, one naturally enhances one's ability to utilise the HOTS of inferring, developing ideas and analysing the work.

In addition to sharpening students' abilities to utilise HOTS, teaching literature in the EFL classroom exposes students to a variety of language structures which enable them to improve their communicative competence in writing. According to Hismanoglu (2005:53), reading literature helps students understand sentence structure, lexical and syntactic formats and many other

aspects of the structure of the written language. This in turn helps them to understand how to connect ideas and to improve their own writing skills.
Thus, another stated claim of the English literature programme according to the Education Ministry English Inspectorate, is that it will improve the writing skills of EFL high school students: “The teaching of higher order thinking skills not only enhances students’ ability to analyse literature, but also gives them the ability to better answer reading comprehension questions in expository texts and improves their writing skills” (State of Israel Ministry of Education pedagogical affairs English department English inspectorate 2013:2).

1.2 DEFINING HIGHER ORDER THINKING SKILLS

There are several terms for HOTS; however, the definitions of what those skills entail are agreed upon by most educators and cognitive scientists. Practicing HOTS is also referred to as critical thinking in the literature. There may be some variations on the definitions, depending upon the subject matter in which one is asked to implement HOTS; yet the cognitive skills one must employ remain the same. For example, Terenzini, Springer, Pascarella and Nora (1995:32), define critical thinking skills or HOTS as the individual’s ability to do some or all of the following: identify central issues and assumptions in an argument; recognise important relationships; make correct inferences from data; make connections between different pieces of information, deduce conclusions from information or data provided; interpret whether conclusions are warranted on the basis of the data given and evaluate evidence or authority.

Facione, Giancarlo, Facione and Gainen (1995:6) define seven different aspects of a critical thinker: truth-seeking; open-minded, analytical; systematic; confident; inquisitive; and cognitively mature. The person utilising HOTS must use a core set of cognitive skills which include; analysis, interpretation, inference, explanation, making connections, evaluation and self-regulation to form a judgment and to monitor and improve the quality of that judgment (Facione *et al* 1995:6).

Self-regulation, or metacognitive skills, is also an essential aspect of higher order thinking. This enables the person to understand how he learns and encourages him to revise his progress or change his mind or his plan (Facione & Sanchez 1995:6). Norris (1985:4) states in this regard, that cognitive skills are essential but good thinking must include metacognitive skills such as, revising the progress and monitoring the cognitive skills that one utilises.

Most essential in terms of one's utilisation of HOTS is how they apply to an understanding of the material read, the thoughts expressed verbally and in writing and the actions displayed. Norris (1985:1) elaborates on this opinion by explaining that critical thinking involves a rational decision about what to do or to believe. It requires an assessment of the view of others and one's own views according to acceptable standards of appraisal. Furthermore, higher order thinking expects people to be able to produce reliable observations, make sound inferences and offer reasonable hypotheses.

According to Willingham (2007:9), critical thinking has three key features which include effectiveness, novelty and self-direction. What makes it effective is that it avoids common pitfalls, such as seeing only one side of an issue. It is novel in that you don't just remember a previous solution or a situation to help you to solve the problem but that you actually devise something new. It is self-directed in that the person must be devising the solutions and not be coaxed by a teacher to provide an answer. When one uses HOTS one is able to consider an issue from various perspectives, to look at and challenge any possible assumption that may underlie the issues and to explore its possible alternatives (Halvorsen 2005:2).

1.3 DEVELOPING AND ASSESSING HIGHER ORDER THINKING SKILLS IN THE SCHOOL CURRICULUM

Norris (1985:1) states that for students to become critical thinkers they need more than the ability to be better observers, they need to know how to apply everything they already know and feel, to evaluate their own thinking and especially to change their behaviour as a result of thinking critically. According to Norris (1985:5), successful application of HOTS requires, among other things, knowledge of the subject matter, experience in the area in question, and good judgment. Teachers should therefore pick a subject in which to teach HOTS and then also apply the skills to real world problems.

Willingham (2007:8), in his research on why critical thinking is so hard to teach, distinguishes between two types of structures within all problems, the surface structure and the deeper structure (section 2.4).The surface structure of a problem is recognised by the person when they hear or read something and automatically interpret it in light of what they already know about similar subjects. Background knowledge not only allows one to comprehend sentences, it also has a powerful effect as one continues to read because it limits the interpretation of a new text that one will read (Willingham 2007:3).

The deeper structure of a problem is the underlying structure which allows one to apply the thinking skill to a new problem (Willingham 2007:3). With deep knowledge thinking can penetrate beyond the surface structure. This allows for the transfer of problem solving skills to new problems with new surface structures. It is not enough, according to Wilingham (2007:12), to teach students metacognition, or regulating one's own thoughts, to comprehend the surface structure of a problem students must also be helped to transfer this thinking skill by learning how to look for the deep structure. This can be done by asking oneself if he/she has had a problem similar to this before and how it was solved at that time, in other words making a connection between one experience and another.

Although Willingham acknowledges the importance of metacognitive strategies he emphasises that domain knowledge is also essential, as well as practicing what one has learned in order to apply it to new situations (Willingham 2007:13). In addition to practicing what one learns in the area of domain knowledge, Willingham (2007:13) further declares that students must practice thinking critically and applying those HOTS so that they learn, not only to think critically, but to be able to do so when confronted with new circumstances. Pogrow (2004:3) recommends practicing HOTS for half an hour every day for one or two years (section 2.10.2) in order to be able to apply the HOTS.

Expanding students' HOTS involves teaching them to not just observe the problem, or to find both its surface and deeper structure but to relate to the problem. Kaasboll (1998:105) emphasises this when she states that students become more involved in their work when they have the opportunity to define their own problems and that this involvement in turn increases motivation for learning.

Wong (1985:8) supports direct instruction of the steps of HOTS that the teacher wants the students to learn. In this method teachers demonstrate the process using events and ideas which are familiar to the students and then apply the same process to unfamiliar material, usually new content from the school curriculum. The rationale for direct instruction of the steps which lead to higher order thinking is that many students may not have exposure to HOTS in their home environments and it is unlikely that they would be able to infer those skills; therefore, the schools should take the responsibility to provide a programme which teaches these HOTS and allows the students to practice critical thinking in the classroom.

Either of these two approaches can be effective and one might discover that a blend of the two may well be the most beneficial method for instilling and applying HOTS. Pearson and Taffy (1982:26) assert that the research shows there should be more emphasis on direct teaching of HOTS in the classroom which includes discussions, feedback and self-regulation strategies. Moreover, student involvement, student-teacher interaction, inductive

teaching and integration of disciplines have shown to be principles of instruction which foster HOTS and problem defining skills (Kaasboll 1998:4).

One can apply a combination of these two methodologies to EFL curriculums where students are not yet proficient in the foreign language. The application of HOTS in the EFL classroom must take into consideration the level of understanding the students have in the target language. According to Callahan (2005:12), by asking higher order questions the teacher builds confidence and language proficiency in the students. However, this should be a process in which teachers first offer these questions in pairs or small groups and then move to asking higher order thinking questions in whole class settings.

By teaching and practicing the use of HOTS in the EFL classroom, in place of drilling for tests, there is the opportunity to effectively improve the entire learning process and its results (Pogrow 2004:4). In Pogrow's HOTS methodology he promotes the development of conversations in the classroom which are designed to lead students into engaging in the key cognitive processes that underlie all learning. These include; the ability to recognise and solve problems, to infer information from a context, de-contextualise, apply ideas from one situation to another (making connections) and to synthesise information (Pogrow 2004:3). These abilities are in particular related to the learning of a new language.

Without assessment it would be impossible to measure the success or failure of HOTS programmes. According to De Corte and Masui (2009:4), assessment should monitor students' progress toward the acquisition of all components of competence, provide diagnostic feedback about students' deep understanding of content and their mastery and productive use of learning and thinking skills and should help students develop skills in individual and group self-assessment.

Norris (1985:5) postulates that assessment of higher order thinking should seek explicit indication of people's reasons for their conclusions. This type of

assessment is critical so that researchers are able to tell the difference between different backgrounds and belief systems of the person conducting the research and the respondent and deficiencies on the examinees' thinking abilities.

Norris (1985:3) suggests that one technique to test HOTS is with essay tests, as opposed to easier to grade objective tests, because they provide the opportunity to gain a more profound insight into the thinking processes the examinee used in arriving at solutions. Essay tests are more likely to reveal the student's thought processes than are objective short answer type of tests. However, the tests themselves must be evaluated critically to make sure that they require HOTS (Norris 1985:5).

Ennis (1993:180), the co- developer of the Ennis-Weir critical thinking essay test, argues that in addition to having a definition of critical thinking for proper assessment, one must also have a clear idea of what the purpose is for assessing HOTS. Ennis (1993:180) states in this regard that a precise definition of what is meant by the term, critical thinking, is the first step when developing a test which can measure this skill. Furthermore, he argues that the purpose for which this type of test will be used should be clearly stipulated and that it should be recognised that no one test will be sufficient to fit all assessment needs.

The type of test used to assess thinking is also important. According to Ennis (1993:186), multiple-choice tests typically miss much that is important in critical thinking. One of the most comprehensive, yet most expensive ways, to measure a student's ability to think critically is in an essay or performance assessment.

One essay in the literature programme in Israel assesses the HOTS of "making connections". This essay is referred to as the bridging essay (see 3.4.5.5). The Israeli Ministry of Education has provided assessment rubrics for grading students' writing of bridging essays (appendix F) in the EFL literature programme (State of Israel Ministry of Education pedagogical affairs English

department English inspectorate 2013:33). This rubric includes categories for HOTS as well as content and organisation and language use and mechanics.
In addition to developing quality assessment tools for measuring students' knowledge of HOTS, De Corte and Masui (2009:10), Facione, Giancarlo, Facione and Gainen (1995:7) and Pogrow (2004:9) argue that the training of teachers and providing educational materials that enable higher order thinking to be presented and practiced is essential. This involves updating textbooks, tests and teacher training courses and materials.

There are several justifications for teaching higher order thinking in a classroom environment. Eisner (1979:107) advises educators that those perspectives, concepts and skills which are not part of the written curriculum will have far reaching consequences on the kind of life students will choose to lead. He refers to this as the null or implicit curriculum and although he elaborates on this concept with examples from the arts, not explicitly teaching higher order thinking to students is an implicit decision that could have far reaching negative ramifications for the students as individuals as well as for the society at large.

The reasons for teaching higher order thinking skills to students include both practical and moral reasons, both of which have an impact on improving the individual and the society. Among the reasons discussed are those that will enable individuals in an ever changing work environment to master the skills necessary to develop new solutions to challenging problems. Fostering independent thinkers promotes involved citizens in a democratic society who are able to think creatively and work together cooperatively to generate new possibilities that will enable them to face the perplexities of the fluctuating world in which we live (Duron, Limbach & Waugh 2006:160).

Because the world is rapidly changing individuals will have to engage in higher order thinking in order to continually update their knowledge and skills set. Furthermore, in a world rife with information accessible at our fingertips, it is essential to foster autonomous thinking people who understand what is important and true and what is faulty and superfluous.

Educators play a critical role in creating independent readers, writers, speakers and listeners who can discern between logical arguments and sophistry. The *raison d'etre* for teaching HOTS is to produce active citizens who engender moral fortitude in their daily lives. These individuals must be concerned with fair-mindedness and the importance of reason and dialogue as essential aspects of a thriving democracy.

Elder and Paul (2010:18) argue that critically thinking is crucial because "the human mind, left to its own, pursues that which is immediately easy, that which is comfortable and that which serves its selfish interests. It naturally resists that which is difficult to understand, that which involves complexity, that which requires entering the thinking and predicaments of others." Under these circumstances the "unreflective thinker" (Elder& Paul 2010:3) is egocentric in their assessments which promulgates prejudices and misconceptions, traits which are detrimental to individuals in particular and to the society in general.

1.3.1 Pressure to respond to the accelerating changes in our world

Beginning in the eighties and early nineties many researchers, among them Paul (1984:4), Cotton (1991:2), Freseman (1990:2), Zohar, Weinberger and Tamir (1994:184) and Graddol (2006:71) felt an emerging sense of urgency to infuse HOTS into school curriculums. Behaviourist theories, which hold that the teacher is the dispenser of knowledge, were becoming invalid as the amount of information continued to grow exponentially. Not only can the teacher not impart it all, but even the best student is no longer able to absorb everything.

Teaching higher order thinking supports constructivist theory (Chen 2011:373; Huang 2010:1) which encourages students to become active participants in their own learning, with the teacher facilitating and guiding the process. The goal is to foster within students the skills for lifelong learning which will ensure their ability to adjust to and succeed in the reality of an ever changing world.

Paul (1984:6) and Gough (1991:16) argue that people will not be able to cope with these changes if the society does not begin to think differently about teaching, learning, politics, business, human rights and conflict. Therefore, it is imperative that educators commit to developing critical minds and critical pedagogy to encourage higher order thinking.

Cotton (1991:10) concurs with this opinion when she postulates that higher order thinking is a necessity in our rapidly changing world. In general, students don't have these abilities; they must be taught to them. Liaw (2007:7) argues that HOTS are increasingly required for success in a knowledge-based society; therefore it is the responsibility of EFL teachers to assist their students in acquiring those skills while learning English as a foreign language. Liaw's assertion that it is the responsibility of the EFL teachers to not only teach the English language and literature to their students, but to infuse that domain of knowledge with higher order thinking has provided some of the impetus for this study.

Freseman (1990:26) further states that people need HOTS, both in school and in the world, so that they will not fall prey to being told what to think and what to do. Shen (1997:1) maintains that the right of free choice itself may depend on the ability to think clearly and critically.

Endres concurs (1996:2 & 11) that higher order thinking is a liberating force in education and a powerful resource in a person's internal as well as public civic life. Having an overall disposition toward critical thinking helps people cope with problems in the present and in the future. The higher order thinker continually evaluates new information and evidence and is willing to compromise and be open-minded. These skills are necessary in order to succeed in a fast paced environment.

Odora Hoppers (2001a:1) as well as Marom, Fischoff, Quadrei and Furby (1991:24) state that from a democratic value of popular rule there is support for developing higher order thinking and making decisions about public

issues. In addition, from the value of individual dignity comes support for making sound decisions about personal issues.

Other researchers such as Cosgrove (2009:5), Zohar (2001:469), Sonn (2000:1) and Kimber and Wyatt-Smith (2010:607) continue to acknowledge that the world is quickly changing and with each day that the pace accelerates, the pressure to respond becomes more intensive. New global realities are rapidly inserting themselves into every aspect of people's lives. Zohar (2001:469) elaborates on this view by explaining that changes in technologies and in the job market result in a lesser demand for blue collar workers and in an increased demand for more sophisticated, highly literate workers. Therefore, higher order thinking must be taught to all students.

One may conclude that HOTS are not optional but mandatory for the individual citizen and employee of the future. In all areas of public and private life whether it is job related, politically, educationally or socially related people will need to have the capacity to think logically, compare and contrast options, infer the meaning of information presented and generate possibilities for solutions, among other HOTS, in order to survive and thrive in the world.

1.3.2 Creating autonomous thinkers

Cottrell (2005:5) declares that a higher order thinker is one who has the courage to battle their own preconceptions, bias, dislikes and beliefs and further realise that even though we may be used to receiving answers within seconds of formulating a question, it is possible that a question, a text or a problem will not have an immediate answer. It may take years to gain an answer or solution and we may perhaps, even after that amount of time only understand a small part of the whole picture. Thus, it is important to facilitate independent thinkers who are patient and willing to live with uncertainty. The quick answer is often not the correct one.

Moreover, higher order thinking brings precision to the way we think and work. According to Cottrell (2005:4) the result is that the critical thinker often is able to save time because he is an independent thinker and he learns to identify the most relevant information quickly and accurately. He can then analyse

and impart it in a logical manner. Nickerson, Baron and Sternberg (1987:32) state that, “we want students to become good thinkers because thinking is at the heart of what it means to be human; to fail to develop one’s potential in this regard is to preclude the full expression of one’s humanity. Thinking well is a means to many ends, but it is also an end in itself”.

To think independently the higher order thinker must face unpopular ideas, beliefs and viewpoints. One needs to have the courage to admit the truth of some of those ideas and beliefs as well as the danger in others. MacKnight (2000:38) makes the argument that if we don’t want our students to fall prey to the modern communication media, they must have the courage and humility to respect diverse perspectives and the flexibility to change their thinking, thus become autonomous thinkers.

1.3.3 Independent readers, writers, speakers and listeners

Central to this research is measuring the higher order thinking and writing abilities of English foreign language students in a two year literature programme infused with HOTS. In general, but also in particular to this study, one can observe the successes or failures in a programme such as this by assessing students’ writing. These are the results they produce on what they hear during discussions, lectures and what they read. Therefore, the remainder of this section focuses on the assumption based on research by scholars such as Paul (1992:16), Abu Shihab (2007:209), Hobson and Schafermeyer (1994:423-425) and Wegerif (2002:20) among others, that teaching HOTS fosters independent thinkers who have the capacity to demonstrate HOTS in reading, writing, speaking and listening.

Paul (1992:15-17) states that one of the goals of higher order thinking is to create autonomous thinkers who have clarity of thought. This process includes recognising problematic claims and concepts and making sure that understanding precedes judgment. The student who has the ability to develop this type of clarity of thought applies it to all areas of his learning; reading,

writing, listening and speaking. In other words, critical thinkers do not mindlessly accept as true or reject as false what they do not understand and they are not easily manipulated.

Abu Shihab (2007:209) in his paper on, “Reading as Critical Thinking” makes the argument that critical reading is related to thinking and therefore we cannot read without thinking. When we read we predict, compare and evaluate. Reading involves an interaction between thought and language in which the reader interacts with the text to create meaning.

Paul (1992:16) concurs with this statement since he recognises that critical readers look for issues and concepts underlying the claims expressed. They are better readers because they can move from basic ideas to specific details and they are not limited by accepted ways of viewing things. A critical reader is an independent thinker. Elder and Paul (2005:32) argue that the critical mind improves reading by reflectively thinking about what and how it reads.

Another justification for teaching higher order thinking is to enable students to become critical writers. Hobson and Schafermeyer (1994:423-425) argue that of the four main methods of communication namely; reading, listening, speaking, and writing, writing is unique because it is a more overtly higher order thinking activity. They conclude that writing involves examination and re-examination, debate and decision making, choice and revision which combined require the person communicating through the written word to exhibit more HOTS than the speaker, listener, or reader.

Abu Shihab (2007:212) agrees when he states that in writing, unlike reading, the text is originated in the mind of the writer and is realised in the graphic display produced. Similarly in terms of writing, the process of revision of drafts enhances both cognitive and meta-cognitive thinking processes. Paul (1992:24) succinctly states, “Disorderly thinking produces disorderly writing, and conversely, orderly thinking produces orderly writing.”

Thus, one could argue that writing improves students' higher order thinking abilities. This research hopes to add to the body of knowledge on this particular topic. This study explores the development of HOTS in conjunction with the students reading English literature and applying higher order thinking to their bridging essays (section 3.5.6).

Furthermore, teaching higher order thinking promotes listening critically. Paul (1992:17) refers to this as, "the art of silent dialogue". Listening can be a passive or uncritical activity however, to listen critically means to integrate someone else's thinking into our own thoughts so that they make sense to us. For Paul (1992:17) and Wegerif (2002:20) critical listening is an art that takes practice over time. It involves asking pertinent questions that enable us to begin to understand what someone else is saying. In addition, the ideal of being able to listen seriously and empathetically and to respond to reasonable challenges with reform is intrinsic to higher order thinking.

Cottrell (2005:4) postulates that higher order thinkers are able to observe and focus better on their reading, writing, listening and speaking. They can respond to key points in a message or text, they know how to express their positions clearly and not only analyse information but apply it to a variety of situations.

The consensus in the literature (Alwehaibi 2012:197; McGuinness 1999:2; Costa & Kallick 2007:217; Huang 2010:7; Tama 1989:3; Wegerif 2002:3; Thomas, Davis & Kazlauskas 2007:330; Adler, Norris & Siegel 1991:67; Liaw 2007:76; Zohar 2004:296) supports the importance of infusing or embedding higher order thinking into the curriculum, especially in the areas of reading, writing, speaking and listening.

Nevertheless, some researchers such as Atkinson (1997:70), Fox (1994:125) and Floyd (2011:289), argue that EFL teachers should be cautious when trying to integrate higher order thinking into the EFL classroom. Their argument can be summarised as follows: 1) Higher order thinking is a non-overt social practice rather than a well-defined teachable set of behaviours; 2)

it is much more difficult to express higher order thinking in a foreign language as compared to the mother tongue and 3) thinking skills do not appear to transfer effectively beyond classroom instruction. The issues raised by these researchers are important to this study because they can illuminate pitfalls and failures in EFL programmes whose mission is to inculcate HOTS within their students.

1.3.4 Moral justification

Teaching higher order thinking skills help people to look at the world with a critical eye. This entails not accepting what one reads or hears without a thorough analysis of the facts and being conscientious in presenting different sides of an argument or problem in one's writing. This is a necessary skill to have in order to maintain one's freedom in a world of sound bites, media bombardment, and rhetoric.

In Paul's (1992:20) opinion critical thinking, if it is to have its full impact as an educational objective, ought to produce individuals with these types of thinking skills who are proactive and want to use these skills to create a better society for everyone. Hanscomb, Title and Issn (2011:138) would agree with this assertion. Hanscomb, Title and Issn (2011:139) further add that in terms of ethics critical thinking can help explain the importance of reason, clarity and rules of dialogue to a thriving democratic process.

Siegel (1980:10) concurs when he states that higher order thinking is not simply a set of cognitive skills or criteria of reasoning assessment but a "certain sort of person". There is a moral depth to the concept of higher order thinking which honours the importance of character and values.

Bailin (1999:168) elaborates on this concept when she emphasises that there is a moral reason for engaging in higher order thinking. One important reason is to understand that knowledge is not always certain, it does not emanate from authority and all opinions or preferences are not equally valid. According to Marom, Fischoff, Quadrei and Furby (1991:24), students must be taught to

analyse information, synthesise it and apply it in a value-oriented way. This further implies that higher order thinking is at its core, a moral endeavour.

In contrast, the higher order thinker who does not exhibit moral fortitude but uses thinking skills to promote his own individual agenda is an egocentric, which Paul (1992:12-13) and Endres (1996:170) would argue is the opposite of a critical thinker. The egocentric person is more concerned with the appearance of truth, fairness, and fair-mindedness than with actually practicing those traits. The egocentric denies or forgets facts that disprove his conclusions and he distorts what others say. The egotist will often resort to rhetoric and try to force or trick someone into agreeing with him or her.

Siegel (1988:99) postulates that as people are socialised, egocentricity could evolve into sociocentricity. This is a situation in which people find that they can satisfy their egocentric desires through a group. This type of "group think" is another example of what could happen if higher order thinking is not developed with a "critical spirit" or what Habermas calls a "hypothetical attitude" (Endres 1996:175).

Endres (1996:176) explains that the hypothetical attitude allows one to distinguish between the objective world, the social world and the world of private experience. This "attitude" enables us to empathise with those who are different from us, communicate at a deeper level and have a genuine respect for others. The hypothetical attitude coincides with Paul's (1984:12) notion of intellectual empathy, McPeck's critical attitude (1990:16) and Siegel's critical spirit (1988: 35), all of which emphasise the moral underpinnings for the development of a true critical thinker.

The moral justification for teaching higher order thinking is emphasised by several scholars (Marshalidis 2001:5; Norris 2003:40; Chowning, Griswold, Kovarik & Collins 2012:2; Costa & Kallick 2007:379; Siegel 1993:165; Siegel 2009:28; Konecki 2005:74; Richards 2006:32 and Zohar 2010:6). These HOTS must be taught and practiced even though it may not be easy to measure the outcomes in terms of a person's moral behaviour. One could

argue that it is a pedagogical goal to develop the hypothetical attitude or critical spirit in students; however, it is difficult to know if one has been successful in achieving this ideal.

The consensus among a number of academics (Norris 2003:44; Cosgrove 2009:61; Angelo 1995:6; Doherty, Hansen & Kaya 1999:5; Willingham 2007:13; Snyder & Snyder 2008:90) seems to be that the more students have the opportunity to practice and demonstrate the skills and dispositions of higher order thinking, the more easily they transfer them into other areas of their lives. This is one reason why teaching and practicing higher order thinking in the classroom should become a priority in educational curricula.

1.4 COMMUNICATIVE LANGUAGE TEACHING AND THE DEVELOPMENT OF HOTS

With the advent of the Communicative Language Teaching movement (CLT), which is currently the most widely accepted approach to foreign language teaching in Israel, a new set of goals, as well as curricular materials, were developed to teach English as a foreign language (Steiner 1999:1). The CLT move was a move away from behaviourism towards constructivism or interpretivism; which postulates that learning is not passive; but rather an active process of constructing understanding, meaning and skills (Jonassen, Cernusca &Ionas 2007:45).

The communicative language approach is in contrast to a long accepted behaviouristic-oriented mechanical language learning environment. The behaviouristic-oriented environment was one in which the instructor was the centre of the learning environment presenting the grammatical rules, vocabulary lists or dialogues to be drilled and the passive learner had to practice and memorise information without necessarily understanding the meaning (Richards 2006:4).

The CLT movement brought about a significant change to make foreign language acquisition a meaningful experience. In the communicative

language approach to language teaching the student is required to make choices, apply the language to life situations, and to work in partnership with the teacher and with fellow students to solve real-life problems (Van Ek 1996:15).

The CLT movement changed methodology in the EFL classroom because of the fundamental belief that, “communication that is meaningful to the learner provides a better opportunity for learning than grammar based teaching” (Richards 2006:17). In addition to the emphasis placed on meaningful communication, the CLT movement advocated the incorporation of thinking skills as part of its philosophy (Richards 2006:23).

Three types of CLT activities are particularly suited to facilitate not only communicative language teaching but also the development of HOTS. They are: firstly, information-gap activities; secondly, reasoning-gap activities; and thirdly, opinion-gap activities (Prabhu 1987:46).

1.4.1 Information-gap activities

Information-gap activities are those which involve a transfer of given information. This means calling for the decoding or encoding of information from one form to another, for example, working in pairs in which each member of the pair has a part of the information needed to complete a task. Information-gap tasks are essential in order to enable students to produce the language both verbally and in writing.

Evidence suggests that a task with a requirement for information exchange is crucial to the generation of conversational modification of classroom interaction. Furthermore, the findings show that group and dyad interaction patterns produced more modification than did the teacher-fronted situation which suggests that the participation pattern as well as task type have an effect on the conversational modification interaction (Doughty & Pica 1986:305).

1.4.2 Reasoning-gap activities

Reasoning-gap activities involve deriving some new information from given information through the processes of inference, deduction, practical reasoning or perception of relationships and patterns (Prabhu 1987:46). An example is a group of learners jointly deciding on the best course of action for a given purpose and within given constraints.

1.4.3 Opinion-gap activities

Opinion-gap activities involve identifying and articulating a personal preference, feeling or attitude in response to a particular theme, topic or task. One example is taking part in a debate or discussion of a controversial social issue (Prabhu 1987:46). Both reasoning-gap tasks and opinion-gap activities involve the use of HOTS on the part of the student (Richards 2006:19).

The teaching and development of HOTS in students enable them to acquire higher levels of language proficiency. Memorising vocabulary and grammatical rules is not sufficient for language acquisition. Inferring, making connections and predicting, in addition to other HOTS must be accessed and utilised in reading comprehension, writing, listening and speaking a language. According to Kabilan (2011:1), in order for learners to be proficient in a language they need to be able to think creatively and critically when using that language.

1.4.4 Content-based instruction

In addition to information-gap, reasoning-gap and opinion-gap activities the CLT movement focuses on two types of curriculum methodologies. One is content-based instruction (CBI) and the second is task-based instruction (TBI). In CBI decisions about content are made first and the other aspects of the curriculum such as grammar lessons and skills and functions are subservient to the content (Richards 2006:28). Advocates of CBI say that it

better reflects the needs of the student learning a foreign language because the learner is interested in applying his knowledge of the language to acquire information and meaning (Savignon & Wang 2003:223; Stoller 1997:1).

1.4.5 Task-based instruction

Task–based instruction (TBI), involves the demonstration of performance and mastery of objectives. It switches attention away from methodology or classroom processes to learning outcomes. A task is an activity where the target language is used by the learner for a communicative purpose in order to achieve an outcome. According to Willis (1996:4), the initial task is intended to require the use of specific interactional strategies and the use of specific types of language.

The TBI approach has been criticised for being too reductionist, because language learning is reduced to a set of lists, and such things as thinking skills are ignored (Richards 2006:44). However, one could argue that TBI methods also require the use of higher order thinking because TBI is not monolithic; it does not constitute one single methodology. It is a multifaceted approach, which can be creatively applied with different syllabi types and for different purposes (Leaver & Willis 2004:3).

TBI does serve an important function in the EFL classroom because outcomes are made specific for example, listing tasks, sorting and ordering tasks, comparing, problem solving, sharing personal experiences and creative tasks. Also, it is conducive to ongoing assessment of students' skills based upon individualised student-centred instruction (Willis 1996:6).

Although, both CBI and TBI utilise HOTS in the classroom, in the CBI approach, the activities of the language class are specific to the subject matter being taught and are geared to stimulate students to think and to learn through the use of the target language (Stoller 1997:2).

In a study conducted by Ghabanchi and Moghaddam (2011:14), the researchers measured the quality of teacher discourse while presenting reading passages in different phases using Bloom's cognitive taxonomy as the measuring tool. The study took place in an EFL classroom and revealed that in classes where higher order questioning and thinking were applied, students' English language skills progressed to a level that allowed them to utilise the target language at a more sophisticated level than their counterparts who were not exposed to higher order thinking questions.

Implementing a curriculum which emphasises HOTS in EFL classrooms is a way to increase literacy, regardless of the student's language level. Callahan (2005:2) recognises that the most consistent variable which affects student literacy and success in the EFL classroom is the number of higher order thinking questions which the teacher asks. When teachers employ effective instructional strategies, EFL students are not only exposed to but will also internalise the nuances of English and critical thinking in that content area (Callahan 2005:20). According to Pogrow (2004:5-7) research shows that the teaching of HOTS improves test scores as well as students' ability to express their ideas in writing.

1.5 MOTIVATION FOR UNDERTAKING THE RESEARCH

In the preceding discussion it was explained that the Ministry of Education English Inspectorate in Israel recently implemented an English literature curriculum referred to as the English literature programme. It is content based with a strong metacognitive characteristic. Some of the goals of this programme are for the students to be able to define a list of HOTS, answer questions using HOTS that relate to the literary texts and to write a bridging essay that shows competency in the HOTS of "making connections" (State of Israel Ministry of Education pedagogical affairs English department English inspectorate 2013:1-3).Thus, students are expected to use and to understand these HOTS as part of their acquisition of English as a foreign language.

This English literature programme for teaching and assessing literature in EFL classrooms in high schools in Israel is based on an innovative Ministry of Education policy to teach and assess HOTS via either a matriculation examination (Bagrut) or a school-based assessment consisting of a literature log (section 3.5.6.1).The literature log, the term used for writing a portfolio, (State of Israel Ministry of Education pedagogical affairs English department English inspectorate 2013:69) consists of all of the students' work in the literature programme. Each unit has six sections: 1) pre-reading activity; 2) basic understanding questions (also referred to as lower order thinking skills-LOTS- questions) and vocabulary; 3) analysis questions which includes HOTS and literary terms; 4) bridging essays; 5) post-reading activity (usually a creative writing, visual or art piece) and 6) summative assessment (refer to section 3.4.5.3 for a detailed discussion).

The English literature programme also utilises the TBI approach as a way to assess students' skills throughout the programme; with the creation of rubric grading charts that include a list of "benchmarks" students are expected to reach. Thus, the curriculum represents a competency-based approach which combines both CBI and TBI in the classroom.

This researcher has been teaching EFL classes in Israel for the past thirteen years and began teaching the English literature programme in 2011, the first year it was formally mandated by the Ministry of Education English Inspectorate. As with most new programmes there has been much controversy surrounding the implementation of it. Much of this is a result of lack of teacher training in the philosophy and methodology for supporting the literature programme as well as the lack of quality teaching materials to implement the curriculum (Zohar 2004:309).

One study (Selig 2009:1) confirms that over 30 English department heads at Jerusalem area schools signed a petition stating that they would refuse to implement the literature programme because they were highly dissatisfied with the current syllabus. The particular interest with this research was to explore some of the outcomes of this new programme (section 1.7).

1.6 FORMULATION OF THE PROBLEM

When considering the previous discussion of the efficacy for integrating HOTS in a curriculum, the reasons why the teaching of HOTS has become a priority in Israel, becomes clear. Once it has been established that HOTS are a value to be taught, learned and practiced, it must be discussed how to implement programmes which include them in the curriculum.

A pilot programme was conducted before the English literature programme was mandated by the Ministry of Education English Inspectorate and teachers were told that it was successful and EFL students' English skills were improved and enhanced by this new programme. According to Dr. Judy Steiner the English Inspector for the Ministry of Education, "the teachers and pupils who took part in the pilot reported that it improved levels of reading, writing and comprehension" (Selig 2009:1).

In view of the fact that the English literature programme was a new curricular initiative, educators have a duty to verify and substantiate the Ministry's claim that this new curriculum improves students' writing skills with HOTS and their understanding of HOTS. Apart from exploring the extent to which the English literature programme has been effective in improving students' ability to apply HOTS in their bridging essays, it is also important to identify the challenges experienced by students when writing bridging essays that incorporate HOTS and when studying literature with HOTS in an EFL classroom. The main research question for this study was therefore formulated as follows: *What are the pertinent challenges and key guidelines in introducing and assessing students' higher order thinking skills in a literature based English foreign language curriculum.* The following sub-questions assisted in addressing the main research question:

- Are HOTS innate skills or must they be purposefully taught in order for students to learn and to apply them?

- To what extent has 10th and 11th grade EFL Israeli students' ability to apply HOTS to their bridging essays, after completing two years in the HOTS infused English literature programme, been improved?
- How accurately could students demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply them in the areas of reading and writing after completing two years in the HOTS infused English literature programme?
- What were students' opinions of the challenges of learning literature infused with HOTS in an EFL literature programme?
- What guidelines could be provided for pursuing further studies into the efficacy of an EFL literature programme which infuses HOTS?

1.7 RESEARCH AIM

The aim of this study was to determine the pertinent challenges and key guidelines in introducing and assessing higher order thinking skills in a literature based English Foreign Language curriculum. In addition the question was asked as to what extent 10th and 11th grade EFL students in Israel were able to understand HOTS and apply them to their written bridging essays after completing two years of the new English literature programme. In order to achieve the above aim, the objectives of this study were to:

- Determine whether teaching HOTS and providing opportunities for students to apply it to their writing will improve their ability to write with HOTS.
- Explore whether or not students could demonstrate an understanding of HOTS by naming them and providing an example of how they could apply them in the areas of reading and writing.
- Investigate students' opinions about the programme after experiencing the curricular initiative for two years.
- Provide guidelines for pursuing further studies into the efficacy of the EFL literature programme which infuses HOTS.

The data gathered from this study provided essential information to the Education Ministry English Inspectorate in Israel, as well as to EFL educators, to begin to understand some of the initial outcomes of the English literature programme.

1.8 RESEARCH DESIGN

Scientific research has undergone paradigm shifts over the last several decades. Shifts occur in cumulative processes which eventually evolve into the adoption of a new outlook on the part of the researchers as well as the community (Jacobs & Farrell 2001:1). Political philosophers such as Frances Bacon and John Locke argue that the study of human beings could be conducted in the same fashion as the study of nature. This view, called Logical Positivism, postulates a rationalistic view of knowledge, which was the foundation of the scientific method during that era (McMillan & Schumacher 2010:5).

Twentieth century paradigm shifts focused on a change in perspective from logical positivism to post-positivism. The post-positivism view in research allows for the limitations of focus on only the objective and the quantifiable, to the consideration also of the subjective and the non-quantifiable (Farrell & Jacobs 2001:2). In addition, post-positivism allows for an emphasis on contextual factors and a focus on the process and diversity in contrast to the product and the attempt to standardise (Jacobs & Farrell 2001:3).

Post-positivism, which became the paradigm which controlled academic beliefs throughout most of the twentieth century, postulates that reality is structured by entities and their relationship to one another (Jonassen *et al* 2007:46). This objectivist belief in a single reality gave way to another paradigm, namely Interpretive/constructivism which emphasises multiple socially constructed realities in which the belief is that reality is constructed by individuals and societies based on their experiences and interactions with and their interpretations of the world in which they live (Jonassen, *et al* 2007:46).

The research design section for this study includes the rationale for conducting this research and an explanation of why it was situated within the Interpretive/Constructivist paradigm. A mixed method approach was employed which involved a quantitative as well as qualitative study to measure the outcomes of the curricular initiative. A more comprehensive discussion of the research design and methodology is provided in Chapter 4.

1.8.1 Rationale

The rationale for conducting this empirical research was to determine the efficacy of the English literature programme in terms of its stated purpose which is to teach HOTS in an EFL literature programme to high school students, improve their understanding of HOTS and improve their ability to write with HOTS. Moreover, the rationale was to create an opportunity for professional critique and scrutiny by EFL educators in the country and the Ministry of Education English Inspectorate on the findings and to encourage further studies. This research enables both replication and generalisation so that the information gathered could be used in subsequent research.

1.8.2 Research paradigm

The interpretive/constructivist paradigm argues that the mind constructs its own conceptual map for interpreting and interacting with the world around it. Accordingly, knowledge, perceptions, imaginations and mental constructions are all a part of the human experience, rather than being independent from the person (Jonassen, *et al* 2007:46). With an interpretive/constructivist paradigm, researchers allow for their judgments and perspectives to play a role in the interpretation of the data, thereby putting more emphasis on values and context and less on numbers (McMillan & Schumacher 2010:6).

Like all other research designs, the interpretive/constructivist design shares a common principle of searching for knowledge by systematically gathering empirical information. This is referred to as evidence-based inquiry. In evidence-based inquiry the researchers provide coherent questions which can

be empirically investigated and linked to relevant scientific theories or conceptual frameworks and then understood or explained within a logical chain of reasoning (McMillan & Schumacher 2010:6-7).

1.8.3 Research approach

Having explained the paradigm in which this study was conducted, it is important to note that although qualitative approaches to doing research are favoured in the interpretive/constructivist paradigm, quantitative approaches are not excluded. This research therefore involved a mixed method approach, specifically triangulation (section 4.4.3) which incorporated both quantitative and qualitative methods.

The researcher chose the quasi-experimental design of interrupted time series for the quantitative aspect of the study. This is similar to a one group pretest-posttest design except it is extended by the use of a number of tests during a defined research period (Marczyk, DeMatteo & Festinger 2005:139). Observing the fluctuation scores on the bridging essays (dependent variable) over time allowed the researcher to more accurately interpret the impact of the independent variable (the literature programme which incorporates HOTS).

Furthermore, the qualitative approach involved two procedures, firstly, giving the participants in the study an opinionnaire comprising of open-ended questions on the programme. They were requested to provide open answers in writing on questions which asked; 1) If they enjoyed reading the pieces in the English literature programme, 2) To name one aspect of the English literature programme which they found challenging and explain why, 3) To identify a HOTS and describe it and 4) If they could now apply a HOTS to their reading and writing and to provide an example to demonstrate they acquired these skills (appendix H). Secondly, a qualitative analysis of 18 bridging essays was conducted to help determine the extent to which

participants' writing with a HOTS improved over the two year period of the study.

1.9 RESEARCH METHODS

The research methods included a purposefully selected group of 50 high school students from two different schools to participate in this study and collecting and assessing three bridging essays from each student over a two year period (section 4.7.1). The bridging essays were copied and marked by three separate markers who underwent training in the English literature programme and had experience in teaching it to students as well.

The grades for each essay were entered on a rubric (appendix E & section 4.7.1.1). The scores were analysed using statistical software which created histograms, line graphs and tables that showed the mean scores of individual markers separately and compared to one another as well as the combined mean scores over a two year period.

The bridging essays also underwent a qualitative analysis. Eighteen essays were purposefully chosen based on the criteria of those with the most improvement, average improvement and least improvement over the two year period. The qualitative analysis of these essays captured emerging themes which were discussed in chapter four (section 4.7.2).

The same students whose essays were collected and marked completed an opinionnaire at the end of the programme. The opinionnaire answers were coded by two coders who developed the master coding sheet and the students' responses were segmented and analysed to reveal themes that emerged from the data (section 6.4).

1.9.1 Selection of participants

The participants in the study were essentially selected as "a sample of convenience" (Marczyk, *et al* 2005:155) since they were accessible for this

study. They were students from two different high schools who were among the first students who were obligated to complete the English literature programme mandated by the Ministry of Education English Inspectorate. The participants represented the highest level of English students in Israel; the ones who take the most rigorous of English examinations referred to as the five point English matriculation (Bagrut) examination. The English literature programme represents approximately one third of the assessments in English which these students must pass in order to receive their high school graduation certificates.

1.9.2 Data collection

In the data collection process, the emphasis was on what Van den Akker (1999:11) refers to as “information richness and efficiency”, most notably because there was an evaluation of three pieces of participants’ bridging essays over a two year period. A total number of 150 bridging essays produced by participants were assessed and analysed.

Bridging essays were chosen as the written format to analyse in this study because they measure one HOTS, “making connections” in a written essay. This involves finding connections between an unfamiliar piece of information presented to the student (a text or quotation which reflects actual events in the author’s life, or historical/cultural information in the context in which the story/poem/play or novel takes place) and having the student explain, in his/her bridging essay, how that new information connects to the literary text studied in class. The bridging essay can be a short answer, usually not less than 100 words and not longer than three paragraphs (sections 3.5.6.1 & 3.6.2). There were specific categories which were marked to evaluate the quality of the bridging essay (appendix E).

Each unit has two bridging questions and essays. One is part of the unit for the literary text studied (section1.5) and one is on the summative assessment for the literary text studied. The bridging essays from the summative

assessments of the students were collected because they were written under “test conditions” in the classroom with the teacher present.

The multiple measures of the participants’ bridging essays occurred at three points during the two year period (section 4.3.2.1).The first was at the beginning of tenth grade, when the participants were first exposed to the English literature programme. The second time was at the beginning of eleventh grade, after one year of exposure to the English literature programme and the third measurement took place at the end of the eleventh grade, when the participants finished the programme.

Participants also had to answer five questions on an opinionnaire. The format of open-ended questions offered the participants the opportunity to explain their answers and provide examples. This is supported in the literature when Onwuegbuzie, Leech and Collins (2012:23) state that a simple “yes/no” response does not yield enough rich information to thoroughly measure the opinions of the respondent and analyse themes which emerge from those answers. Since the samples of participants were relatively small and purposive, there was an added value of getting optimally rich information. The opportunities for rich data collection methods can be limited with big numbers of research participants (Van den Akker 1999:11).

1.9.3 Data processing

A rubric, developed by the Ministry of Education English Inspectorate’s rubrics for grading bridging essays with modifications made by the researcher, was used throughout the study to score all bridging essays from each participant (appendix E). Modifications were made to the rubric to separate the “making connections” from the “content” category. This enabled the researcher to measure the use of HOTS by isolating those skills, which on the Ministry of Education English Inspectorate’s rubric are combined into one category (appendix F) that includes “content”.

The quantitative results were charted on an excel sheet according to a rating scale which used descriptive statistics to rate the initial, interim and summative results on the participants' bridging essays. These statistics were used to present the quantitative descriptions in a manageable form. Bridging essays were chosen for qualitative analysis based on the mean marks they received from all of the markers to delineate most improved, least improved and average improvement.

The opinionnaires were analysed by creating a master list for coding the responses of the participants with symbols, descriptive words and category designation to isolate specific ideas and opinions. In addition, segmenting the information provided a means for processing the data. Segmenting entails dividing data into significant analytic components such as words, sentences or passages that convey a specific meaning (Johnson & Christensen 2004:503). Each of the answers to the five opinionnaire questions were recorded and then analysed in terms of the themes which emerged from the data (section 4.7.3).

1.10 MEASURES FOR TRUSTWORTHINESS (VALIDITY AND RELIABILITY)

The researcher paid special attention to the trustworthiness, validity and reliability of the information gathered from the participants. The trustworthiness depends on the credibility, transferability and confirmability of the qualitative data collected (section 4.9). The essays analysed and collected were accurately transcribed and the opinionnaire responses were coded based upon a master coding sheet assembled by the researcher and one other coder. The dependability was determined by the two coders working in conjunction with one another. Transferability to other high schools learning the English literature programme has a high probability because of the meticulous attention paid to the collection, coding and analysing process of the essays and opinionnaires.

To ensure the internal validity of the interrupted time series design, a longitudinal design involving multiple measures of the students' bridging essays was measured over a two year period. This enabled the researcher to plot a trend and further observe the effect of the independent variable on the dependent variable in this study (Marczyk *et al* 2005:143).

Wolfe and Stevens (2007:8) recognise the validity of the rubric instrument as a tool to assess students' writing. They assert that using the rubric as an assessment instrument enables teachers and researchers to get a clear picture of the strengths and weaknesses of their subjects' performance on a set of explicit and descriptive set of criteria.

The reliability of using rubrics to measure the bridging essays of students was that it was graded according to an explicit and descriptive set of criteria that was designed to reflect the weighted importance of the objectives of the assignment. It also helped to ensure that the grading standards did not change over time so that the researcher was able to get a clear picture of the strengths and weaknesses of students' work. According to Jacobs and Farrell (2001:7) rubrics capture vital information about students' competence in their foreign language acquisition, especially in terms of assessing the process of writing.

To further ensure the reliability in the research design, the researcher recruited two other markers to mark the bridging essays. To make sure that there was no bias on the part of the researcher or the other markers, the bridging essays were assigned numbers, participants' names were removed and the markers did not know the participants whose work was being marked. This was also done on the opinionnaires. The names of each participant were erased from the opinionnaires and a number, one through 50 (for each of the 50 participants) was written on their opinionnaires to assure anonymity.

1.11 ETHICAL MEASURES

Written permission was obtained from the principals of both schools (appendix A) and the English Inspectorate in the area (appendix B) to allow the

researcher to copy students' bridging essays from their summative assessments. In addition, students (and in a few cases parents' when students were not yet 18 years old) were asked to sign a statement in which they acquiesced to the researcher using their bridging essays and opinionnaires to conduct the research for this study (appendix C). The researcher explained to the students that the bridging essays collected and marked would not have their names on them and that they were assured anonymity throughout the research process. Ethical clearance was obtained from Unisa's Research Ethics Committee (appendix D).

Chapter one provided an introduction and background for this study. A discussion of the motivation for undertaking this research, the aim of the research and the research design were explained. This is a mixed method study in which 50 participants' writing formats and opinionnaires were collected and analysed to measure the outcome of an EFL curriculum initiative of the Ministry of Education English Inspectorate in Israel. This EFL programme infuses HOTS into a literature curriculum and its goal is to foster the learning of HOTS as well as improve the reading and writing skills of the students. Chapter two discusses the origins of higher order thinking, what it is and what characteristics and dispositions a higher order thinker displays.

CHAPTER 2
HIGHER ORDER THINKING SKILL AND DISPOSITIONS

2.1 INTRODUCTION

Chapter two begins with a discussion of the historical, philosophical, psychological, pedagogical and societal origins of higher order thinking. The chapter continues with a discussion of what it means “to think” and to delineate between lower order thinking skills, basic thinking skills, or surface structure understanding and HOTS, also referred to as critical thinking or deep structure understanding.

The characteristic traits and dispositions must be part of the discourse in determining what it means to be a higher order thinker. General categories of the traits and dispositions of someone who exhibits HOTS are identified and discussed.

The chapter further outlines the necessary skills, abilities or dispositions one needs to develop to become a higher order thinker. In addition, a discussion ensues about the aspects which influence the development of higher order thinking in human beings.

The chapter further discusses approaches and methods for embedding higher order thinking into the educational curriculum and concludes with an analysis of four studies which infuse higher order thinking skills into their specific programmes.

2.2 HIGHER ORDER THINKING: HISTORICAL, PHILOSOPHICAL, PSYCHOLOGICAL, PEDAGOGICAL AND SOCIETAL ORIGINS

The historical origins of higher order thinking can be traced back to Socrates and the Socratic method (Corich, Kinshuk & Jeffrey 2007:164) This method encourages people to rectify inconsistencies and irrational thought processes

through questioning. This includes clarifying meaning, recognising inadequate evidence and beliefs that are contradictory, as well as empty rhetoric. Roman preparation of lawyers, the medieval focus on logical argumentation, the Renaissance and the Enlightenment all had the goal of teaching their citizens to reason well and willingly (Facione, Giancarlo, Facione & Gainen 1995:2). Endres (1996:172) argues that higher order thinking is the most fundamental structure of human communication. Human beings' ability to clarify what they experience and impart it to others enables purposeful communication with one another.

Higher order thinking emerged from the philosophical study of logic which formed part of the curriculum of the 20th century. The philosopher, John Locke (1690: I, IV, 2), in his essay, "Concerning Human Understanding", wrote about reflection and operative knowledge as the mind's ability to observe its own operations. This is not associative retrieval of a particular answer but knowledge of what to do in order to produce answers.

Operative knowledge is constructive and is best demonstrated in situations where something new is generated. It is not the response that matters as much as the way in which it was arrived at. Von Glasersfeld (1987:44) concurred with Locke and stated that higher order thinking refers to the process of interpreting which requires the person to be aware of more than one possibility or choice and this act requires reflection.

Hanscomb, Title and Issn (2011:137) argue that in reference to psychology, higher order thinking reveals a wide range and deep understanding about human thought and behaviour. Wundt (Rieber & Robinson 2001:200) developed a theory of "Voluntaristic Psychology" in which he argues that acts of will or decisions and choice, at a complicated level, is the act of logical thinking. Although volitional acts can range from automatic impulses to complex decisions, they are what Wundt (Rieber & Robinson 2001:202) refers to as motivated behaviour which means that people want to have the opportunity to achieve the loftiest level of thought or higher order thinking.

Wundt (Boring 1968:13) postulates that in order to understand human thought psychologists must adapt the scientific method to measure what he termed “introspection”. Introspection is the immediate observation of one’s subjective experience. It is a metacognitive process which involves thinking about what one is currently experiencing.

Sternberg (2009:26) views higher order thinking as a component of intelligence which he argues increases with age as the components of acquisition, retention and transfer steadily lead to a growing knowledge base. This coincides with the conclusions of Holton and Clarke (2006:128), Magno (2010:140), Ku and Ho (2010: 251), Angelo (1995:6), Zohar and Ben David (2009:75), Willingham (2007:9), Paul (1992:20), Pogrow (2004:10) and Cotton (1991:11), as well as other scholars who discuss the importance of the process of metacognition in higher order thinking.

Bloom (Bloom, Englehart, Furst, Hill & Krathwohl 1956:5) postulates that pedagogically a person’s thinking skills begin at a lower level (knowledge e.g. recognition and recall) and then once those basic thinking skills are mastered one is able to move to higher order thinking (application, analysis, evaluation and synthesis). In conjunction with this theory he developed a list of higher order thinking skills which he argues are hierarchical, from simple to more difficult and abstract.

Vygotsky’s (1932:110) view is that the development of thinking and language doesn’t move from the individual to the socialised but from the social to the individual. Higher order thinking is a product as well as a process practiced and utilised by the individual as a result of his interaction with his culture, language and society.

Dasen, Dasen and Mishra (2010:316) confirm Vygotsky’s theory that in the case of children developing geocentric spatial language and understanding, learning occurs within the context of the society and family. The children learn through involuntary immersion, observation, enculturation and imitation of spatial references used by people around them.

Hanscomb, Title and Issn (2011:137) state that the history of the development of how we define and what we consider higher order thinking, moved from a singular emphasis on the individual cognitive aspect of higher order thinking to one that is more inclusive of emotions, society and ethics. It is essential to any discussion of higher order thinking that one takes into account the individual as an emotional and social character, as well as a cognitive being. The challenge is to organise experiences and interpret them through a personal as well as a cultural lens.

In order to foster higher order thinking one must attempt to define the difference between lower order thinking, basic or surface understanding and higher order thinking or deep structure understanding. Scriven and Paul (1987:2) juxtaposes these two types of thinking in that he states that the lower order thinking skills are about acquisition and retention of information alone. Lower order thinking is about the mere possession of a set of skills because it involves the continual use of them as an exercise, whereas, higher order thinking involves reasoning leading to conclusions with implication and consequences. The following sections discuss those differences as analysed by several scholars.

2.3 LOWER ORDER THINKING OR SURFACE STRUCTURE UNDERSTANDING

Willingham (2007:8) discusses the idea of two types of understanding, the surface structure or lower order thinking and the deep structure, or higher order thinking. In surface structure understanding the student accepts ideas and information passively without reflection on purpose or strategies in learning. The surface understanding is about memorising facts and procedures routinely while failing to recognise principle or patterns in what he/she is learning (Entwistle & Ramsden 1983:45).

The surface structure thus involves basic knowledge (De Bono 1993:135) or factual information that one knows by rote but cannot transfer to a new problem or situation (Entwistle & Ramsden 1983:45). Several scholars,

namely Paul (1992:18), McGuinness (1992:2), Pogrow (2004:5), Mok (2010:21), Chen (2010:139) and Ghabanchi and Moghaddam (2011:13) argue that without the transfer of knowledge to a new problem or situation it is apparent that understanding is not present. Learners who are only able to regurgitate information, because they have learned it by rote, have not assimilated a true understanding of the material and how it can be applied to similar or different situations, or when it is not appropriate to apply the information or technique to another context. Thus, that information remains in the realms of lower order thinking.

De Bono (1993:212) describes lower order thinking and higher order thinking as a process in which the brain moves from a basic knowledge to a critical thinking ability. He argues that the nerve networks in the brain allow incoming information to organise itself into sequence or patterns and that the information is recorded on the surface. It lies there passively until it needs to be used by the brain. Even though the information is passive, it actively changes the brain when it receives future information and when it must be used to solve a problem.

One could argue that lower order thinking skills (LOTS) involve some level of higher order thinking. For example, Krathwohl and Anderson (1992:214) postulate that conceptual knowledge entails the ability to understand the interrelationships among basic elements within a larger structure that enable them to function together. In addition, procedural knowledge involves the ability to know how to do something, techniques and methods.

It is therefore important to note that this level of lower order thinking cannot be neglected; it is a part of the process of achieving a higher order level of understanding. However, it is not the ultimate goal for the educator although it is often unfortunately, the end results of a formal learning experience. The next section will discuss how the term higher order thinking is defined in the literature as well as what deep structure understanding entails.

2.4 DEFINING HIGHER ORDER THINKING OR DEEP STRUCTURE UNDERSTANDING

Although educators and researchers often use the terms critical thinking and higher order thinking interchangeably, higher order thinking will be used in this research as an all-encompassing term which includes critical thinking, creative thinking and problem solving. Throughout this chapter the term "critical thinker" refers to a person who displays higher order thinking skills. The discussion below explains the motivation for using these terms.

Lewis and Smith (1993:135-136) argue that there is confusion in defining terms such as critical thinking, problem solving and creative thinking. They claim that philosophers and educators stress the term critical thinking in their respective fields, while psychologists and other scientists prefer to stress thinking skills or problem solving skills. Therefore, Lewis and Smith (1993:135) propose that there is the need for a broader term, "higher order thinking", which encompass both schools of thought about thinking, including creative thinking.

Shaughnessy (2004:2) and Paul and Nosich (1993:55) agree with Lewis and Smith (1993:136) and postulate that higher order thinking is an umbrella term that encompasses critical thinking, creative thinking and problem solving. The Quality Enhancement Document of the North Carolina State University (2012:14) further states that critical and creative thinking are specific types of higher order thinking skills. Moreover, King *et al* (2013:1) stipulate that the term higher order thinking skills include critical, logical, reflective, metacognitive and creative thinking which are activated when individuals encounter problems or dilemmas.

According to Von Glasersfeld (1987:42) higher order thinking is about "building cognitive structures" and solving dilemmas. In addition, several scholars including Bailin (1999:166), Sternberg (2009:38), Walker (2003:264), Willingham (2007:8), Ku and Ho (2010:251), Hughes (2009:144), Gueldenzoph-Snyder and Snyder (2008:90), Abrami, Bernard and Borokhovs

(2008:1102) and Cotter (2009:3), agree that higher order thinking is about learning how to organise and analyse one's own experience guided by a network of procedures, principles, concepts and purposes. All of these involve making judgments, evaluating reasons, justifying claims and engaging in metacognitive activities.

Higher order thinking is a reasoned, purposive and introspective approach to solving problems or addressing questions with incomplete evidence and information for which an incontrovertible solution is unlikely (Rudd, Baker & Hoover 2000:5). The essential aspect of this definition is the approach to problem solving and the expectation that there probably will be more than one plausible answer to any given problem. Inherent in this concept of higher order thinking is the belief that there could be many perspectives to the dilemma and therefore, solving it involves an on-going process and a commitment to hard work, as well as embracing uncertainty along the way.

Von Glasersfeld (1987:39) articulates that higher order thinking is looking at the facts, which can contribute to knowledge or understanding of the world, as long as they do not clash with experience or as long as they make sense. What determines the value of the conceptual structures we create is how well they fit with experience and their viability in solving problems. Paul (1992:1) argues that higher order thinking consists of constantly evaluating and examining assumptions and distinguishing between what is relevant and what is not.

Paul (1992:14) further postulates that humans have a natural tendency to want to simplify the information received through their senses, experiences, and problems however, higher order thinking is trying to find simplifying patterns and solutions to problems and experiences. It is distinguishing between what may be a useful simplification and a misleading oversimplification that determines the knowledge or understanding a person gleans from the sensory world.

The National Council for Excellence in Critical Thinking Instruction (Paul & Nosich 1993:92) defines higher order thinking as being a process that is intellectually disciplined. It involves actively and skilfully conceptualising, applying, analysing, synthesising, making connections and evaluating information. The information is gathered from or generated by observation, experience, reflection, reasoning, or communication and higher order thinking acts as a guide to belief and action.

According to Casas (2011:211), higher order thinking can be defined as a "complex set of thinking skills and processes that enable individuals to make fair and useful judgments". Woolfolk (2001:355) briefly summarises higher order thinking as "evaluating conclusions by logically and systematically examining the problem, the evidence and the solution".

Willingham (2007:8), in his discussion on comprehending the surface structure and the deep structure of a problem, asserts that we can recognise higher order thinking when the knowledge of how to solve a problem is transferred to a new surface structure. The deeper structure of a problem is the underlying structure of the problem which allows a person to apply the higher order thinking skill to a new situation.

Paul (1992:15) and Wegerif (2002:6) would agree with this observation. They both postulate that higher order thinking is transferring insights to new contexts. It is not just about learning but about transferring the learning, which is about applying HOTS to other situations. Paul (1992:15) and Dean and Kuhn (2003:1) further posit that higher order thinking is developing new applications for novel situations and organising ideas and experiences in different ways. This in turn enriches understanding of the idea applied and of the situation in which it is transferred.

Anderson and Krathwohl (2001:29), Endres (1996:176) and Woolfolk (2004:161) acquiesce that conceptual knowledge (Willingham's deep structure) implies a deeper understanding that helps people to transfer something learnt from one situation to another. This implies some level of

higher order thinking because it incorporates knowledge of how to do something as well as being able to choose the best method or technique for accomplishing a task. Higher order thinking is analysing the fundamental, but usually hidden issues, involved in problems. It is looking beneath the surface as well as applying knowledge or skills to a new venue.

According to Entwistle (2000:5) the features of the deep approach to learning show that the student is determined to understand the “deep structure” of the material by interacting critically with the content. Thus, higher order thinking is organising and integrating ideas and examining the logic of the argument while relating to the evidence and conclusions. This, argues Entwistle (2000:5), is a product of intelligence, effort and motivation on the part of the learner.

Deep structure understanding includes several skill sets as well as domain knowledge. It is process oriented, reflective and not always comfortable or obvious. Although, it would be easy to accept everything one reads and hears as true and not question or delve into the facts or more creative solutions to a problem, the committed higher order thinking person realises that alternative solutions and deep understanding involve a process that requires dedication and hard work.

Although Bloom’s Taxonomy continues to provide a basis for defining, analysing and evaluating higher order thinking, it has undergone revisions. Some of these include a new delineation for the “knowledge” categories which cut across subject matter lines to recognise knowledge as both a noun and a verb, (the difference between “knowledge” as recognition and recall and “knowing” as in understanding) forming the basis for the cognitive process dimension. Anderson and Krathwohl (2002:213) add another category to the “knowledge” dimension, metacognitive knowledge, which involves knowledge about cognition in general, as well as awareness of and knowledge about one’s own cognition.

According to Fox (1994:125), Odora Hoppers (2001:1) and Vygotsky (Ivic 1994:474), higher order thinking has strong societal components. It is a voice, a stance, a relationship with texts, family, friends, the media and even the history of one's country. Wegerif (2002:14-20) further proposes that the quality of individual thinking reflects the quality of collective thinking and vice versa. In other words, thinking is both individual and societal. There is a constant movement between internalising social thinking into individual thinking and the externalising out again by individuals into social thinking.

The broad theoretical framework which underpins this research is constructivism. This theory emerged in the 1970s and 1980s and postulated that learners are not passive recipients of knowledge, but actively construct their knowledge in interaction with their environment and through organising and making sense of information through interpreting it. Constructivism views the teacher as the cognitive facilitator in a learning environment while the learner becomes the centre, constructing knowledge rather than recording information (Huang 2010:1; Duffy & Jonassen 2013:2).

Constructivists view knowledge acquisition as a process which involves higher order thinking. It is the ability to perceive and interpret what one experiences. It involves learners in reasoning and reflecting as a means to gaining understanding. Constructivists argue that for (conceptual) knowledge to be assimilated within the learner, learning tasks should be framed as problem solving activities which must require the use of higher order thinking. The emphasis is on the active process of constructing, or building cognitive structures, rather than passively acquiring information (Von Glasersfeld 1984:16).

From the preceding discussion in can be concluded that higher order thinking firstly, encompasses the skill and ability to discern the difference between information which is relevant and useful and that which is not in viewing and understanding a situation or a problem. This means being sceptical of ideas or solutions that do not differentiate between the various aspects of a dilemma or predicament. Secondly, it includes organising that information into useful

chunks or categories that enable one to begin to clarify the process needed to address the situation or problem. Thirdly, higher order thinking entails developing initiatives, methodologies or solutions that include logical, creative and moral thinking. It requires a commitment to open-mindedness, the ability to recognise one's mistakes when proven wrong and an ongoing understanding that to embrace higher order thinking involves hard work. Higher order thinking can be taught and it can be measured.

There are traits and dispositions which embody the higher order thinker. Higher order thinking is more than just a set of skills; it includes a critical attitude as well as a critical spirit. The next two sections will discuss the traits or dispositions of the higher order thinker as well as the skills which embody the act of higher order thinking.

2.5 TRAITS AND DISPOSITIONS OF THE HIGHER ORDER THINKER

Kant (Harpaz 2013:10) states that "skills of critical thinking without dispositions of critical thinking are empty and dispositions of critical thinking without skills of critical thinking are blind". In order to understand the skills that educators need to teach to foster higher order thinking abilities one must first define the traits of a higher order thinker. After that it is possible to decide how to teach skills that will lead to characteristic traits of a person who displays higher order thinking. The California Critical Thinking Disposition Inventory, developed by Facione, Giancarlo, Facione, & Gainen (1995:3-4), argues that there is a growing consensus that a complete approach to developing young people into good critical thinkers must include the nurturing of the disposition toward higher order thinking.

There are a whole range of traits that define the critical thinker however, there are several studies Facione *et al* (1995:3-4), Pascarella and Terenzini (1991:118), Downs (2008:60), Duron, Limbach & Waugh (2006:160), Zoller, Barak & Ben-Chaim (2007:353), Halpern (2007:7), Hendrickson (2008:679), Patterson (2011:38), Roth (2010:1) and Arend (2009:2) that point to seven specific categories which embody the traits that are most often discussed

when defining critical thinkers. These categories include being sceptical and trusting, inquisitive, creative, fair-minded or open-minded, embracing a critical attitude and having confidence in reason.

2.5.1 Scepticism and trust

The qualities and skills associated with higher order thinking involve a combination of scepticism and trust. Cottrell (2005:2) states that although higher order thinking is a cognitive activity there are other traits which influence our decisions and actions. To learn to think critically we must be able to discern clearly what we can trust to be as it seems from what is not true and to know when it is useful to be sceptical. Lipman (2003:32) actually defines higher order thinking as the ability to practice a “healthy scepticism”. Paul (1992:16) declares that critical thinkers read with a healthy scepticism, but this does not mean that they judge what they are reading until they clarify it and understand it.

This is not to say that trust and scepticism in higher order thinking is a personality characteristic, in the sense that some people are more trusting than others. It is about a certain set of methods which are aimed at exploring evidence in a particular way. Ennis (1987:175) phrases it in another way when he states that higher order thinking is the ability to reflect sceptically and to think in a reasoned way. It doesn’t mean going through life doubting everything and everyone, but keeping the possibility open that what you do know may only be part of what is true. Moreover, Paul (1984:16) proposes that a true critical thinker has an obligation to question or be sceptical about his or her own assumptions in order to try to understand the perspective of others.

2.5.2 Inquisitiveness

In the California Critical Thinking Disposition Inventory (CCTDI), which is elaborated upon in the section on Tools Used to Measure Critical Thinking

(section 2.10), Facione *et al* (1995:11) include inquisitiveness as a construct on the test which is divided into ten items. The inquisitive person is one who values knowing how things work, being well-informed and sees the value in learning even if there is not an immediate reward for it. Costa and Kallick (2007:2) argue that true inquisitiveness is what drives a person to think deeply. People have a desire to be challenged by a problem and will not be satisfied until they engage with it and try to understand it. Leedy (2010:3) further states that any research originates with a question or a problem. The process of asking questions leads to discovering knowledge and without that trait of inquisitiveness; human beings would not advance in their understanding of their world or the people in it.

2.5.3 Creativity

According to several researchers including Paul (1992:16), Kabilan (2011:1), Claxton, Edwards and Scale-Constantinou (2006:57), De Bono (1993:1) and Sidhu, Chan and Kaur (2010:55), higher order thinkers must be creative thinkers as well, generating many possible solutions and choosing the best one.

Bailin (1987:24) questions the radical dichotomy between critical and creative thinking and argues that there are serious conceptual and educational problems with this supposition. Many view critical thinking as a process that works within a framework and creative thinking as being spontaneous, non-judgmental, often irrational and relying on intuition and unconscious processes. However, she proposes that the two go hand in hand as creativity is not just a question of generating new solutions to problems but of finding better solutions. This creative process, according to Bailin (1987:25), Willingham (2007:8), Brahler, Quitadamo and Johnson (2002:211), Barzilai and Zohar (2008:51) is connected with higher order thinking and in-depth domain knowledge.

Liaw (2007:4), in her study on content-based reading and writing for higher order thinking skills in an EFL context, argues that for learners to be proficient in a language they need to be able to think creatively and critically when using the target language. Kabilan (2011:1) postulates that learners can only become proficient language users if, besides using the language and knowing the meaning, they are able to display creative and critical thinking through the language. Liaw's (2007:4) research supports this theory which states that learners must be creative in their production of ideas and be able to critically support them with rational explanations and examples.

These studies are of particular interest for this research and will be referred to in subsequent chapters. The students in this current study were not simply expected to summarise the literature pieces taught in the classroom, but to apply higher order thinking when writing a bridging essay.

2.5.4 Fair-mindedness or open- mindedness

Paul (1992:15-16) states that higher order thinkers pursue issues in depth. They move between basic underlying ideas and specific details to concepts underlying claims expressed. They apply the same concepts in the same ways and draw conclusions from evidence culled with an open-mind. Paul (1992:5) refers to this as "the perfecting of one's thought for the apprehension and defence of fair-minded truth".

Bailin (1999:167) and Roth (2010:1) agree that there is a moral reason for teaching higher order thinking; we are attempting to promote certain behaviours and attitudes such as open-mindedness.

According to MacKnight (2000:38), a critical thinker must be able to examine logical relationships in arguments, respect diverse perspectives and look at phenomena from different points of view. These abilities enable higher order thinkers to be flexible enough to change their thinking when their reason leads them to do it. Paul (1992:12) concludes that to be fair-minded we must

interact with and exchange ideas with others as a way to correct and balance our thinking. “If we commit to fair-mindedness, we struggle intimately with our own limited insight and hence with our bias.”

Paul (1992:13) proposes that suspending judgment and recognising the limits of ones’ knowledge is an integral part of becoming a critical thinker. This implies that the critical thinker is not afraid to say, “I don’t know”. He exhibits a lack of arrogance or conceit and is able to distinguish between what he knows and what he doesn’t know. This type of fair-mindedness leads to intellectual humility and can be achieved through what Habermas (Endres 1996:175) calls decentring. This concept is discussed in the next sub-section on critical attitude.

2.5.5 Critical attitude

McPeck (1990:16) posits, to think critically about one’s own thinking means to appreciate the strengths and limitations of one’s own knowledge. He refers to this as a “critical attitude”.

Norris (2003:44) concurs, although he uses a slightly different term when he states that having a “critical spirit” is as important as thinking critically. This idea emphasises a metacognitive aspect to higher order thinking in that the critical spirit requires one to think critically about all aspects of life. This also means to think critically about one’s own thinking and to act on the basis of what one considers is morally correct. His argument is that higher order thinking does not always cause someone to do the right thing. One needs to employ higher order thinking skills to one’s actions in order to act in accordance with the dictates of critical thought. For Norris (2003:5), thinking critically is a necessary condition for being an educated and moral person while Siegel (1980:14) argues in the same vein that, in the end students must become critical thinkers so that they are able to make decisions for themselves.

Habermas (1994:167) posits that an essential trait for any critical thinker is the ability to “decentre” or to adopt a “hypothetical attitude”. This means that the person is able to look at a situation or a problem from a completely objective viewpoint. Endres (1996:172) further defines decentring as the ability to distinguish issues of taste, justice and truth according to objective, social or subjective views. One could argue that Kohlberg’s post- conventional moral stage (Endres1996:171), where one is able to transcend personal needs and social norms to consider moral problems abstractly, would coincide with Habermas’ notion of decentring.

2.5.6 Confidence in reason

The higher order thinker must have what Paul (1992:14) refers to as intellectual perseverance. To become a critical thinker is not easy. It takes effort and the ability to struggle with confusion. A higher order thinker must develop confidence in reason, “confidence in reason does not deny the reality of intuition; rather, it provides a way of distinguishing intuition from prejudice” (1992:14).

Cottrell (2005:4) adds that higher order thinking involves attention to detail, identifying trends and patterns, going over information and material, looking at different perspectives, objectivity and considering the short and long term consequences of beliefs and actions. Higher order thinking is associated with reasoning or our ability to use rational thought to solve problems. Confidence in reason encourages people to come to their own conclusions through their ability to develop their own rational faculties.

Benesch (1993:546) passionately states that the belief in reason is a quest for the social, historical and political roots of conventional knowledge and an orientation to transform learning and society. Thus, one could argue that confidence in reason not only has implications for the individual as a rational thinker, but for the whole society. Wegerif (2002:10) concurs by stating that

the need to teach higher order thinking is now rooted in our particular socio-historical situation.

The next section discusses the specific skills or “habits” the higher order thinker must engender. They include what Costa and Kallick (2007:17) refer to as *habits of mind,* macro and micro skills in specific domains, inductive and deductive reasoning skills and metacognitive skills.

2.6 HIGHER ORDER THINKING SKILLS

A consensus among many researchers such as Cottrell (2005:2), Qian (2007: 45), Woolfolk (2012:355), Mason (2007:339), Chowning, Griswold, Kovarik and Collins (2012:8), is that higher order thinking entails the ability to master a number of skills that when combined with domain knowledge enables the person to understand the relationship of the parts to the whole. According to Halvorson (2005:133), higher order thinking is as much a skill as it is a body of explicit knowledge. Just as with any skill it must be practiced and applied to new situations, in order for the person to become proficient in using higher order thinking. Pogrow (2004:7) states that it takes one to two years of 35 minutes a day of intense daily conversation and reflection, in which students verbalise ideas, to develop higher order thinking abilities. Costa and Kallick (2007:71) refer to this as “repeated exposure” to cognitively demanding tasks which also build intuitive awareness. The following sub-sections discuss the skills that one must learn and practice in order to become a higher order thinker.

2.6.1 Habits of mind

Costa and Kallick (2007: xvii) state that higher order thinking skills should be more than behaviours, they should become habits. In their work on discovering *Habits of Mind,* they discuss the development of independent thought which needs to be taught and fostered within the school curriculum.

A habit of mind is formed when the skills one has mastered come as a natural reaction to new situations, which require a person to utilise higher order thinking. This promotes the idea that higher order thinking is an on-going process that requires people to continue to develop new ideas, abilities and processes with an ever growing and deepening repertoire of higher order thinking strategies. These include analysing arguments, problem-solving, recognition of assumptions, making connections, comparing and contrasting, evaluation and generating possibilities (Costa & Kallick 2007:66; 76).

2.6.2 Micro and macro skills

Micro skills refer to the fundamentals. In higher order thinking it means learning the meaning of terms such as assumption, implication, inference and conclusion (Paul1990:11). In reading it means learning the meaning of the lexis, sentence structure and grammar. Learning the micro skills or the parts is essential to understanding the whole, or the macro level which is the ability to read, understand and analyse a written text.

This research focuses on the skills of reading English literature and learning and practicing HOTS in writing, therefore many of the following examples relate to higher order thinking in reading and writing. Essential to reading comprehension and writing is the requirement that students master both micro and macro skills.

Paul (1992:12-13) states that rarely in higher order thinking do we perform only one activity. Usually we must integrate a variety of HOTS. For example, even though reading is considered a macro-ability, we must make use of a variety of higher order thinking micro skills that we use in tandem with one another in order to understand what we are reading.

For example, a reader might start by reflecting on the title, or read the beginning and identify some issues in the book or story. As the reader continues he/she might interpret various parts of the story that seem vague to

us and try to interpret them. The reader might think about his/her own experiences and make connections between his/her ideas and the characters' or develop a sense of the author's assumptions. These entire individual actions move as part of one integrated activity with the goal of making sense of what one is reading. People read, not to practice their higher order thinking micro skills; but rather to use those micro skills in order to read better or read more clearly or critically.

Abu Shihab (2007:210) in his paper on "Reading as Critical Thinking" expresses this concept in another way. He postulates that texts can be analysed on two levels, the micro-propositional level and the macro-propositonal level. The micro level of analysis is concerned with how coherently organised the sentences are and the macro level is concerned with the relationship of the ideas presented in the text. Both skills are essential and involve higher order thinking on the part of the reader.

Abu Shihab (2007:211) further argues that teaching students to employ macro thinking skills in comprehending texts, both in their own language and in a second language, will help them to comprehend the text better than if they just have an understanding of the parts of the text (lexis, sentence structure, etc.). Paul (1992:24) claims that in many cases the whole (macro) is greater and more important than the parts (micro). Abu Shihab's research makes the point that not only is it possible to teach higher order thinking skills in an EFL class, but by fostering those skills one helps the students to understand the text better than if the teacher focuses only on decoding the language in the text.

Paul (1992:18) further states that micro and macro skills can include comparing and contrasting ideals with facts. The confusion of facts (micro) with ideals (macro) may prevent someone from actually achieving his/her ideals. A person practicing higher order thinking skills strives to understand the discrepancies between facts and ideals and proposes methods for minimising them. Thus, the higher order thinker exhibits a variety of interdependent skills which involve both micro and macro abilities.

Moving from micro to macro skills is an inductive reasoning process. Deductive reasoning requires taking apart the whole (macro) and understanding the pieces which comprise it. Understanding inductive and deductive reasoning skills are elementary to the higher order thinker.

2.6.3 Deductive and inductive reasoning

Deductive reasoning is breaking down the whole into its parts in order to understand the basic elements. In reading deductive skills are associated with constructivism in that the focus is on what the reader brings to the process (Abraham 2000:6). The reader looks at the text and with prior knowledge tries to focus on the meaning of the text. It has often been compared to whole word recognition as opposed to decoding. Deductive reasoning is theory driven, knowledge driven and context driven (Miyamoto 2013:3). It is a cognitive process that derives understanding from contextual cues or schema that the brain can retrieve from memory or prior knowledge (Biederman, Glass & Webb 1973:22).

Inductive reasoning is associated with decoding. This involves a type of information processing based on what the brain perceives and then is able to synthesise (Miyamoto 2013:3). It is driven by information or data.

These two strategies are considered HOTS because they involve analysis and synthesis, both of which are cognitive processes that involve organising knowledge. Deductive and inductive strategies, or what Stanovich (1980:52) refers to as the interactive approach to reading, are used in conjunction with one another in order to comprehend reading material.

2.6.4 Metacognition

Essential to any study on higher order thinking skills is a metacognitive aspect. One cannot practice higher order thinking without reflecting upon one’s learning, thinking and actions. A person utilising HOTS must be able to

reflect upon his thinking as well as on his actions. Metacognition is the ability to think about thinking. Pogrow (2004:2), Halpern (2007:9), Dean & Kuhn (2003:1), Magno (2010:137) and Zohar & Ben David (2009:1657), among other scholars, postulate that teaching metacognitive strategies to students enables them to develop a growing awareness of the relationship of thinking to one's behaviour as well as one's learning. Locke (1690:1.IV.2) uses the term reflection to refer to the mind's ability to observe its own operation, in other words, metacognition.

Doherty, Hansen & Kaya (1992:2) Duron, Limbach & Waugh (2006:161) declare that metacognition is an essential skill for creating critical thinkers because higher order thinking requires self-reflection and self- assessment. For Paul (1992:20) reflection is an integral activity for critical thinkers in order for them to avoid prejudice and faulty thinking and to become more objective.

Furthermore, according to Hobson and Schafermeyer (1994:29), metacognitive strategies involve regulating, directing, monitoring, and evaluating one's learning. That is to say that critical thinkers must plan what action they will take or task they will learn. They must monitor their progress and evaluate the results. Thomas, Davis and Kazlauskas (2007:330) concur that these strategies can significantly enhance students' problem solving capabilities through improving their ability to comprehend the problem.

Norris (2003:4) postulates that the purpose of metacognitive skills is to revise cognitive skills. Osman and Hannafin (1992:83) agree with Norris' assertion since they posit that metacognition is synonymous with higher order thinking. It is an awareness of one's own knowledge and the ability to understand and manipulate individual cognitive processes. The following section discusses the aspects that influence higher order thinking in people.

2.7 ASPECTS WHICH INFLUENCE HIGHER ORDER THINKING

If the society has determined that higher order thinking is a skill/habit and trait worth employing (sections 2.5 and 2.8) then one must focus on the influences

which foster or impede attaining that goal and determine what actions are detrimental to inculcating those values. The following section deals with this issue.

2.7.1 Emotions

What one comes to know or understand is not only influenced by one's cognitive or reasoning capacity. Studies in psychology and neuropsychology show that human inference (the activity of forming mental representations such as beliefs and decisions based on what one senses) is a process that is often emotional and can lead people to make mistakes in judgment. Thagard (2011:153) refers to these as psychological error tendencies and he argues that failures in thinking and understanding go beyond fallacious reasoning or formal logic. These mistakes arise from a host of psychological error tendencies such as motivated inference and fear driven inference.

In an article on the "Implications of Developments in Neuroscience for Research on Teaching and Learning", Blakemore and Frith (2000:6) report that research on implicit learning has shown that the brain processes information that is neither attended to nor noticed. In other words, much of the information that enters into our brains is not intentional; it comes in through "the back door" so to speak. This information is especially pertinent when discussing the effect that emotion has on a person's ability to exhibit higher order thinking.

Claxton (2008:6) argues that neuroscience research on affective areas such as emotion; highlight the importance of feelings in thinking. Without emotions thinking can become abstract in that it is not connected to reality, i.e. thinking smart, but acting stupid.

Thagard (2011:159) further explains that motivated inference happens when people distort judgments because of personal goals and fear driven inference occurs when people believe something that they fear to be true. Paul (1992:1)

phrases this in other terms by stating that humans are not just the only logical animal, they are also the only illogical species.

In other words, viewing the information that we receive from the world, organising it, evaluating it and making decisions is a process that is multimodal. According to Thagard (2011:152,160), Cottrell (2005:2-3) and Hughes (2009:144), higher order thinking is not just associated with reasoning or our ability to use rational thought, but must also include an awareness of the emotional root of inferences as well as the maturity of the critical thinker. Higher order thinking as a process is complex and involves the ability to use a wide range of skills and attitudes.

Moreover, Thagard (2011:154-155) postulates that a common held belief about higher order thinking is that good arguments are the basis of forming rational beliefs and making decisions and illogical arguments are the causes of irrational beliefs and making poor decisions. However, inference, or the activity of forming beliefs, is not only based on arguments or linguistic processing, but the brain also processes information from all of the senses and emotion is just as important as cognition.

Paul (1992:13) recognises that virtually all human feelings are based on some level of thought and almost all thought is generated by some level of feeling. It is not honest or practical to separate thought and feelings as though they were independent of one another. Hanscomb, Title and Issn (2011:13) stipulate that it is clear that some of the elements of higher order thinking are the subject matter of many disciplines, especially psychology and communication, which have broad relevance to everyday life.

2.7.2 Motivation

Anderson and Bourke (2000:5) speak about affective characteristics which are feelings and emotions that motivate people to act. These emotions have three main characteristics: firstly, intensity or the degree or strength of the

feelings, secondly, directions which is whether the emotions are positive or negative and thirdly, target which refers to the activity, idea or object of the feelings. Anderson and Bourke (2000:3) explain that the relationship between emotions and motivation is that a motive is an impulse that impels one to action and that almost all non-cognitive variables to some degree qualify as motivational. Alston (1967:402) and Kaasboll (1998:4) argue that a person is motivated to perform an action to do something for a purpose, or to achieve a goal, or to realise an end.

Constructivist theories are about how people create systems that provide meaningful understanding of their worlds and experiences (Raskin 2002:1). As opposed to the operant philosophy in Behaviourism, constructivists argue that people are motivated primarily by what Von Glasersfeld (1987:47) calls "self-generated reinforcement" or intrinsic motivators. This term means that, rather than a person being motivated for only commodities such as money or social standing, the most reinforcing reward is to organise and understand our experience.

Theories of intrinsic and extrinsic motivation became prominent in the mid 1970's (Dornyei & Ushioda 2013:7). Intrinsic motivation means finding an object enjoyable. Something that causes someone pleasure, liking or enjoying an activity. This motivation comes from inside the individual.

Extrinsic motivation is behaviour which is driven by external rewards, motivation that originates from outside the person. Brophy (1986:44), Weiner (1992:25) and Woolfolk (1998:376) claim that the best way to motivate students to learn is to get them to have intrinsic desires to 1) master a skill, 2) value the subject matter and 3) value the learning activity. Kaasboll (1998:4), Stoller (1989:2), Shen (1997:259), Alwehaibi (2012:194) and Woolfolk (Shaughnessy 2004:174) all agree that intrinsic motivation plays a role in learning and accessing higher order thinking. According to the theory of intrinsic motivation, extrinsic motivators such as grades could seriously undermine students' intrinsic desires.

Chowning, Griswold, Kovarik and Collins (2012:7) find that incorporating ethical dilemmas into the curriculum is one strategy for increasing student motivation. This coincides with the theory of situational interest and individual interest (Schunk 2004:9). Situational interest focuses on a task or activity and making it novel, challenging or surprising. Individual interest is the ability of an individual to engage in an activity for a relatively long period of time because they value the activity. Situational interest is a form of extrinsic motivators while individual interest is a form of intrinsic motivators.

Developing intrinsic motivation, especially in terms of a desire to utilise higher order thinking in one's approach to all situations, is a process that involves hard work. As Paul (1990:5) states, "to develop one's mind and discipline one's thinking requires extensive practice and long-term cultivation." It is far easier to follow what others are doing than to explore the evidence or reasons on your own. It is easier to memorise information than to analyse it. It is easier to rely on propaganda or to be manipulated by sophistic arguments than it is to practice the traits of intellectual humility, courage, empathy, integrity and a sense of justice. A primary role of the educator will therefore be to enable the process of intrinsic motivation to blossom and strengthen in their students and to foster HOTS.

2.7.3 Age

According to Facione, Giancarlo, Facione and Gainen (1995:20) maturity, both cognitive maturity and epistemic development, enable a person to approach problems, decision making and inquiry with a sense that there may be more than one answer, that sometimes certainty isn't guaranteed and that some problems are presented with not enough evidence or are not structured well.

Piaget and Inhelder (1968:302), Hughes (2009:144) and Supekar and Menon (2012:2) also write about the importance of age and development as a factor in utilising higher order thinking; although there are those scholars (De Bono

1993:3; Schommer-Aikins & Hutter 2002:5; Doherty, Hansen & Kaya 1999:1) who argue that there are adults who never reach a level of utilising higher order thinking in their daily lives for a variety of reasons. Some of those have to do with epistemic development, self-confidence and lack of opportunities to learn and practice higher order thinking and to understand why it is valuable.

2.7.4 Teachers' ability to teach higher order thinking

Several scholars (De Corte & Masui 2009:181; Pogrow 2004:3; Sidhu, Chan & Kaur 2010:61; Cotton 1991:7; Alwehaibi 2012:53; Chen 2011:374; Lombard & Grosser 2004:215; Ketabi, Zabihi & Ghadiri 2012:8; Jacobs & Farrell 2001:14; De Corte 2003:54; Costa & Kallick 2007:94; Riasat, Khan, Ghazi, Shahzad, Kahn & Scholar 2010:43) agree that success in imparting the skills, traits and habits of higher order thinking to students is conditional on teacher education and training based upon innovative practices and ideas (section 3.7). In addition to domain knowledge, as part of the pedagogic training of educators, they must undergo intensive staff development that is on-going in the area of infusing higher order thinking into their lessons. The goal is to encourage the teacher to become a participant in the knowledge building community of the classroom and not the disseminator of information and understanding.

Alwehaibi (2012:61) discusses a study on a programme for teaching higher order thinking in EFL classes. The result of a pilot testing programme shows that training English language teachers to use a metacognitive awareness approach in their planning, monitoring and evaluation of their lessons resulted in improvement in teaching critical writing skills. In addition, proficient teachers of writing must have specialised and deep content knowledge to both explain the content to their students and to be able to analyse and understand errors made by students and help them to correct their mistakes (Wahleithner 2013:12). When teachers recognise that their role is changed to a facilitator of learning they understand that they must focus on thinking activities and

questioning. This encourages their students to think for themselves and become more self-regulated learners.

Teachers' views and ability to infuse HOTS into the classroom, along with emotions, motivation and age of the students, are all important factors which affect students' success in mastering HOTS. The following section discusses approaches and methods for embedding HOTS into the school curriculum.

2.8 THEORETICAL APPROACHES AND METHODS FOR EMBEDDING HIGHER ORDER THINKING INTO THE SCHOOL CURRICULUM

There are three theoretical approaches to teaching higher order thinking to students. Firstly is the general reasoning approach, secondly is the subject specific approach and thirdly is the mixed approach (section1.4). These theoretical approaches encompass several methods for embedding higher order thinking into the curriculum. Under the general reasoning approach there is the scaffolding method. Under the subject specific approach there is the infusion method and under the mixed approach there is the schemata method and the cooperative learning method.

These four methods were chosen because there is agreement among many scholars (Wegerif 2002:20; Willingham 2007:8; Norris 2003:5; Shen 1997:259; Holton & Clarke 2006:131; Jacobs 2003:1; Korkmaz & Karakus 2009:53; Duenas 2004:73; Stoller 1997:1-2; Woolfolk 2005:159) that these are the most effective methods for firmly establishing higher order thinking within the school curriculum and transferring them outside of the formal educational setting.

2.8.1 General reasoning approach and scaffolding method

The general reasoning approach advocates teaching higher order thinking as a skill or trait separate from the content area. Advocates of this philosophy include Sternberg (2009:572), Astleitner (2002:53), Feuerstein and Jensen

(1980:423), Pogrow (2004:4) and Costa and Kallick (2007:xiv). They postulate that just as domain specific knowledge is essential to acquiring more domain specific understanding, teaching general skills in higher order thinking and practicing them in different situations makes them more transferable to a variety of domains and circumstances both inside and outside of the classroom setting. This general reasoning approach views higher order thinking skills and traits as having their own rules, definitions and pedagogy. When its concepts are taught and practiced, outside of the context of a specific topic, they are more transferable to specific subject domains.

One method to enhance students' ability to apply HOTS is through teaching the skills and traits of higher order thinking and then scaffolding, or supporting the learning process of the students, in order to help them have a deeper understanding of the HOTS. Holton and Clarke (2006:131) define scaffolding as an act of teaching that supports the immediate construction of knowledge by the learner and provides the basis for independent learning and higher order thinking.
Thomas, Davis and Kazlauskas (2007:331) further postulate that scaffolding provides learners with parts of the task that initially may be beyond their ability. It allows students to focus on the parts of a task that they can manage while still looking at the work as a whole. This type of guidance helps learners to develop their ability to work independently.

Methods of scaffolding include identifying the logic or the origin of an idea and encouraging students to think about, support or refute it based on analysing the evidence. According to Thomas, *et al* (2007:332) scaffolding provides a framework of questions and evaluation criteria to promote higher order thinking. In addition, Sharma and Hannafin (2004:191) state that reflecting on one's own learning and thought process, or metacognition, is another way of scaffolding.

To further elucidate the framework of questions scaffolding provides, it is essential to mention the importance of embedding both lower order and higher order thinking questions within the materials presented to the students.

Several researchers, McNeil (2010:74), Yang, Newby and Bill (2005:163), Gueldenzoph Snyder and Snyder (2008:90), Duron, Limbach and Waugh (2006:161), Cosgrove (2009:21), Thomas, Davis and Kazlauskas (2007:331), Williams and Lahman (2011:143), Sidhu, Chan and Kaur (2010:55), all emphasise the need for the teacher to develop (as well as to aid the students in developing) quality questions which help students to have a deeper understanding of the material. These questions will facilitate higher order thinking and thus, encourage students to apply what they learn to new situations both inside and outside of the classroom environment.

2.8.2 Subject specific approach and infusion method

Those who advocate the subject specific approach when teaching higher order thinking, including Glaser and Strauss (1967:99), Elder and Paul (20010:35), Adler, Norris and Siegel (1991:62), Liaw (2007:52) and Halvorsen (2005:2) conclude that those people who have a strong ability to critically think are able to do this because of their mastery of content knowledge. They argue that reasoning and learning develop together through active application of subject specific knowledge, within a problem solving context.

The research on the debate as to whether it is best to teach higher order thinking as a separate subject, outside of content domains or within them, seems to point to the latter according to Wegerif (2002:20), Willingham (2007:8), Barzilai and Zohar (2008:51) and other experts in the field. They would not support the claim that universal HOTS exist outside of a context. In other words, the processes of thinking are intertwined with the content of thought which is domain knowledge. Without background knowledge and practice using it, the person is not able to implement higher order thinking skills. Willingham (2007:13) further states that teaching students to think critically is not the same as being able to do so. It requires them to deploy the right type of thinking at the right time and that cannot happen without domain knowledge and practice.

In addition, Norris (1985:42) argues that higher order thinking skills are best taught in the context of a subject and successful application requires, among other things, a knowledge of the subject matter, experience in the area in question and good judgment. According to Glaser and Strauss (1967:99), learning and reasoning skills develop not as abstract mechanisms of heuristic search and memory processing, but rather as the content and concepts of a knowledge domain attained in learning situations. Marom, Fischoff and Quadre (1991:24) also agree that students' high aptitudes in their ability to reason are attributed to their content knowledge as well as their higher order thinking skills.

The process of inserting higher order thinking into the content is referred to as infusion. Wegerif (2002:3) states that the best way to teach HOTS is not as a separate subject, but through infusing those HOTS into the teaching of content areas. McGuiness (1999:4) supports the "infusion" approach which is the idea that it is best to teach curriculum content infused with the teaching of higher order thinking skills. She argues that teaching general thinking skills needs to be carefully contextualised to be effective.

In her study on, "Enabling Higher Level Thinking Process in ESL Reading", Shen (1997:3) observes that teachers are promoting higher order thinking by infusing instruction with opportunities for their students to read, write and discuss. Shen's (1997:258) results show that higher order thinking emerges from discussions on the literature. This supports the emerging consensus that the best way to teach higher order thinking skills is to infuse them into the subjects taught in the classroom.

2.8.3 Mixed approach and schemata and cooperative learning methods

Advocates for the mixed approach for teaching higher order thinking (Marom, Fischhoff, Jacobs Quadrel & Furby1991:53; Wegerif 2002:3; Ketabi, Zabihi & Ghadiri 2012:8; Lipman 2003:219; McGuinness 1999:1; Thomas, Davis &

Kazlauskas 2007:328; Davies 2006:179; Brahler, Quitadamo, & Johnson 2002:212) argue that what is essential in learning and understanding is the ability to transfer what one has learned to a new situation or subject. In order to do this, students need to learn the general principles of higher order thinking as well as examples of and practice within specific domains of knowledge. The following methods can be applied to all three approaches for acquiring the skills and traits of higher order thinking.

Schemata are hypothetical mental structures for representing generic concepts stored in one's memory. Although this is another type of scaffolding, it embodies the mixed approach to teaching higher order thinking because it involves creating mental pictures that coincide with both the specific skill set and its application to a specific domain of knowledge. Abu Shihab (2007:212-213) defines schemata as a framework, plan, or script that is created through experience with people, objects and events. In relationship to the EFL class, he explains that the EFL teacher must provide the students with the schemata they lack in order for them to understand what they are reading. This involves building bridges between prior knowledge and new knowledge.

For example, reading is a higher order thinking skill that involves an interactive process between the reader and the text in which the reader actively produces meaning through a set of mental processes. According to Widdowson (2003:54) schemata function as "idea" scaffolding in the ordering, organisation and interpretation of experience and are necessary for regulating and organising the reader's ability to interpret the meaning of the text. Thus, embedding schemata into the reading class is a mixed method approach for fostering critical readers and critical thinkers.

Scholars such as Abu Shihab (2007:216), Mok (2010:116), D'Antoni, Zipp, Olson and Cahill (2010:11) and Hunt and Beglar (2005:40) express the importance of creating schema as a scaffolding technique to promote higher order thinking. Specifically for the EFL student, these schemata are tools that aid the foreign language learner in understanding a text by accessing a mental picture, already inside the student's mind. On a basic level it can mean

having an image of an object when the student hears or reads the word. On a more complex level it might mean having a mental picture of a concept such as, “hard work”, which would allow the student to visualise the concept rather than simply translating the words into his mother tongue.

The schemata are not to take the place of learning new vocabulary in the foreign language, but rather to enhance meaning of concepts and ideas that allow for higher order thinking such as; inference, comparing and contrasting, distinguishing different perspectives, explaining cause, effect and patterns, as well as problem solving in the target language.

Another mixed approach for embedding higher order thinking into the classroom is through cooperative learning. Cooperative learning, a constructivist approach, capitalises on students working together towards academic goals. The classroom teacher becomes the facilitator and a member of the learning community. Cooperative learning tasks, much more than simply working in groups, are inherently creative, intellectually demanding and involve higher order thinking (Cortright, Collins & DiCarlo 2005:107, Jacobs & Farrell 2001:11; Tam 2000:57).
Through utilising the method of cooperative learning in the classroom the teacher allows for the development of higher order thinking through group discussions and work in domain tasks. True cooperative learning also has a metacognitive aspect to it which encourages students to discuss the process they go through to arrive at certain results. More than that, they are expected to evaluate those results through peer reviews. Jacobs (2003:1), Korkmaz and Karakus (2009:53), Duenas (2004:73), Stoller (1997:1-2) and Woolfolk (2005:159) all laud the benefits of the cooperative learning approach to facilitate the cultivation of higher order thinking.

Whether one chooses to teach HOTS separately or within specific domains in a curriculum, what is most important is that students are able to apply those skills and traits to all subjects and in all aspects of their lives. Without the ability to define the HOTS and to practice them in the areas of reading, writing, speaking and listening they have no true value for the individual or the

society. There are several ways to measure whether or not students have absorbed the understanding of HOTS. This research measures the results of students' higher order thinking as it presents itself in writing formats and opinionnaires, based on the Ministry of Education's English Inspectorate's literature programme. This EFL literature programme represents a subject specific approach and infusion method for teaching HOTS. The following section discusses a number of tools which are used to measure higher order thinking.

2.9 TOOLS TO MEASURE AND ASSESS HOTS AND DISPOSITIONS

Paul and Nosich (1993:5) argue that in order to measure or assess critical thinking skills and dispositions or traits researchers must develop two guidelines. Firstly, criteria must be designed that have a rich concept of critical thinking. Secondly, domains of critical thinking must be delineated because these elements are essential aspects of reasoning and once defined can then be assessed. Included within the domains must be a set of standards which are established that apply to higher order thinking in every subject.

There are a number of common tools used to measure critical thinking skills. Below is a discussion of five of them which educators and researchers use (Corich, Kinshuk & Jeffrey 2007:165). It is important to note that these, like most tests for critical thinking, are created for University, graduate level and gifted high school students.

The following tests assess higher order thinking with essays and short answer questions. Each method has its positive and negative aspects.

1. Ennis-Wier Critical Thinking Essay Test (Ennis & Weir,1985)
2. The California Critical Thinking Skills Test: College Level (Peter Facione,1990)
3. The California Thinking Dispositions Inventory (Peter & Norren Facione,1992)

4. The International Critical Thinking Essay Test (Paul & Elder, 2005)
5. International Critical Thinking Basic Concepts and Understandings Test (Elder & Paul, 2010)

These tests were chosen because they represent assessments in which the respondents must write short answers or short essays to display HOTS which is similar to the approach in this research study. Answers must be marked by a teacher who is trained to differentiate between answers which display HOTS and those that fall into the category of fallacious thinking.

Elder and Paul (2010:4), Cosgrove (2009:19), Paul and Nosich (1993:15), Ennis (1985:3) and King, Goodson and Rohani (2013:3) agree that the written essay part of a critical thinking assessment test is essential. It must be designed to address critical thinking traits that show the ability to construct an interpretation, to create a logical outline of the text, to cull information and clarify a complex issue and then to express it in a written format that establishes the person's ability to express critical thinking skills in an essay.

Examples might include the ability to construct an interpretation, to make a logical outline of a text, to figure out ways to gather information and to take an unclear and complex real issue and reformulate it so as to make it more amenable to a solution. In order for the essay test to be valid, according to Paul and Nosich (1993:12), it must be constructed by experts in critical thinking, centrally graded by teams well-trained in a full concept of critical thinking and assembled from a large and rotating bank of short essay questions, in order that the items show no significant differences. All these aspects were adhered to in this particular study reported on in this thesis.

However, in terms of the validity of the essay examination, Facione (1990:7) points out that one must be aware that higher order thinking sub-skills such as evaluation and inference may not be apparent in the final version of a written essay. This is because, in the final version, the student has discarded the irrelevant arguments and conclusions that he deems to be insignificant.

It might be worthwhile to review the rough draft or outline that is written before the final draft; just as in a mathematics examination the marker requires the student to show his work. In this way the process is also judged and not just the final result. This would also enable the teacher or marker to discover where the faulty logic in the student's argument might have occurred.

Disagreement occurs, in terms of how to best establish the reliability and validity of critical thinking tests. For example, Paul and Nosich (1993:8), postulate that unless the people evaluating the assessments are experts themselves in higher order thinking, there is a danger that a non-substantive or superficial concept of critical thinking will be fostered in the students. This occurs when an institution or, a person feels that critical thinking is obvious and does not need scholarly analysis or that critical thinking skills can be taught and judged separately from one another, as opposed to understanding the interrelation of these concepts.

On the other hand, researchers (Ennis &Weir 1985:1; Paul 2004:3; Ricca, Lulis & Bade 2006:5; Cosgrove 2009:58; Liaw 2007:74) argue that anyone can be trained to teach and evaluate higher order thinking. Many critical thinking tests utilised in the classroom are marked by teachers who are not necessarily scholars or experts in HOTS but are educators, some of whom have participated in training in critical thinking and are able to recognise it and evaluate it. In many cases, it is assumed that the teachers will be able to effectively assess student essays and answers to questions that evaluate critical thinking and reasoning skills.

2.9.1 The Ennis-Weir critical thinking essay test

The Ennis-Weir Critical Thinking Essay Test is a general test of critical thinking ability in the context of argumentation (Ennis-Weir 1985:1). Ennis and Wier created this critical thinking test as an evaluation tool for testing and for material for teaching critical thinking. In the test, a complex argument is presented to the student who is asked to formulate another complex argument

in response to the first. The goal of the test is to help evaluate a person's ability to appraise an argument and to formulate, in writing, an argument in response, which also recognises a creative dimension in critical thinking ability.

The test has a scoring system which emphasises the logical dimension of critical thinking. This includes measuring competence in the following areas; 1) getting the point, 2) seeing the reasons and assumptions, 3) stating one's point, 4) offering good reasons, 5) seeing other possibilities or explanation, 6) responding appropriately and 7) using emotive language to persuade.

2.9.2 The California critical thinking skills test

The California Critical Thinking Skills Test is designed for the College Level but is also appropriate for advanced and gifted high school students. The examination has a multiple choice section which incorporates interpretation, argument analysis and appraisal, deduction and induction, some basic statistical inference and puzzles. It was created by Peter Facione in 1990.This test measures the core reasoning skills by requiring the test-taker to choose answers for questions which range in difficulty and complexity. Individuals need to analyse or interpret information from everyday scenarios presented in text, chart, or images and draw accurate inferences. They must also explain why the information given represents strong or weak reasoning or why an evaluation of an inference is strong or weak. The test is usually administered in 45-50 minutes.

2.9.3 The California critical thinking dispositions inventory

In 1992 Norren and Peter Facione published The California Critical Thinking Dispositions Inventory which attempts to assess critical thinking dispositions as well as skills. The authors of The California Critical Thinking Dispositions Inventory (Facione1990:13) stipulate that the importance of this test is to measure the "willingness and ability" of someone to think critically. It is based

on the consensus of the “ideal critical thinker” as it is articulated in the APA Delphi Report (Facione 1990:2).

Facione (1990:12) states in the Delphi Report, that each cognitive skill can be correlated with the cognitive disposition to use that skill. In other words, a person who is proficient in a particular skill is said to have the aptitude to execute that skill. A good critical thinker must embody the dispositions for critical thinking since critical thinking is not about mastering a skill set alone, it is about knowing when to apply those skills and genuinely having the inclination and eagerness to continually improve one’s mind.

2.9.4 The international critical thinking essay test

The purpose of the International Critical Thinking Essay Test is to provide an assessment of the fundamentals of critical thinking that can be used with content from any subject. The goal of the test is two-fold. The first goal is to provide a reasonable way to pre and post-test students to determine the extent to which they have learned to think critically. The second goal is to provide a test instrument that stimulates the faculty to teach their discipline so as to foster HOTS in the students.

The International Critical Thinking Essay test is divided into two parts: firstly, analysis of writing prompt and secondly, assessment of the writing prompt. The analysis is worth 80 points; the assessment is worth 20. In the analysis segment of the test, the student must accurately identify the elements of reasoning within a written piece. In the assessment segment of the test, the student must construct a critical analysis and evaluation of their reasoning.

Each student examination must be graded individually by a person competent to assess the critical thinking of the test taker and trained in the grading called for in this examination. In evaluating the student’s examinations the grader is attempting to answer two questions: 1) Did the student clearly understand the key components in the thinking of the author, as exhibited in the writing

sample, e.g. identifying purpose, question at issue, information, conclusions, assumptions, concepts, implications, point of view? 2) Was the student able to effectively evaluate the reasoning, as appropriate, in the original text and present his/her assessment effectively?

2.9.5 International critical thinking basic concepts and understanding test

The International Critical Thinking Basic Concepts and Understanding Test is a comprehensive examination which measures the foundational level of critical thinking concepts and principles (Elder, Paul & Cosgrove 2007:1). One of the unique features of this examination is that it can be taken online. The test focuses on five dimensions of higher order thinking; 1) analysis of thought, 2) assessment of thought, 3) disposition of thought, 4) skills and abilities of thought and 5) obstacles to higher order thinking. It is a three-part examination with 100 items and is designed for use beginning at the high school level, grade ten through college, university and graduate levels. The test takes approximately 30-45 minutes to administer and the authors (Elder *et al* 2007:2) recommend that students take it from two to four times a year in a pre-test/post-test up to eight times.

All of these testing methods have their positive and negative aspects. The essay format for testing HOTS is a more expensive form of performance assessment; however, it has the most validity for what is revealed in the student's writing. It can be either highly structured, like the Ennis-Weir Critical Thinking Essay and the International Critical Thinking Essay Test, or a less structured performance assessment such as, the use of student portfolio writing assignments (section 3.5.6.1). The negative aspects of assessing HOTS in portfolio writing assignments could also be lack of comprehensiveness, possible excessive subjectivity and lengthy and expensive reporting (Ennis 2001:185-186).

2.10 EXAMPLES OF OUTCOMES OF FOUR HIGHER ORDER TEACHING PROGRAMMES

Several programmes and curricula have been developed over the years to teach HOTS in an educational venue, beginning in elementary school through post-graduate programmes. The following section will discuss four of these programmes, along with some of the outcomes they noted, as a result of infusing HOTS into their curriculum. These four studies were chosen because; each one has implications for this research, as it relates to embedding HOTS into the EFL classroom through an English literature curriculum.

The first study involves a professional development programme for teachers, which enables them to improve their ability to teach HOTS in the classroom. This study is important because it reveals that students are not able to master HOTS without competent and trained teachers who are committed to fostering those skills. The second study focuses on teaching higher order thinking to disadvantaged students in which the researcher (Pogrow 2004:3) argues that the results could apply to EFL and to ESL students who are intelligent but don't have the language skills in the foreign or second language. The third is a study on teaching HOTS in a content-based reading and writing programme for EFL students. The fourth study discusses the new role of English language teachers in developing students' higher order thinking.

2.10.1 Continuing professional development (CPD) programme

This research is a study conducted by Cosgrove in 2009, in the Lampton Secondary School in West London. The research is on a continuing professional programme for teachers to bring critical thinking more systematically and explicitly into their classrooms. The school chose a model of critical thinking developed by the Foundation for Critical Thinking under the auspices of Paul and Elder (Cosgrove 2009:5) in 1981.

There are three theoretical constructs which form the core of this model (Cosgrove 2009:8). These include elements of thought which are intellectual constructs embedded in all reasoning, intellectual standards, which are

criteria needed for making sound judgements and intellectual traits of mind, which serve to help thinkers to use critical thinking in open-minded ways rather than manipulative ways.

In Paul and Elder's (2009:24) model the elements of thought are displayed within a circular diagramme. This emphasises the non-linear nature of the relationships between these elements. They include; point of view, purpose, question or problem, information, interpretation, inference, concepts, assumptions, implications and consequences.

The intellectual standards, for evaluation in Elder and Paul's (Cosgrove 2009:10) model, include; accuracy, precision, relevance, depth, breadth, logic, significance and fairness. The goal with this model is to encourage teachers to develop questions which adhere to the above criteria. For example, to what extent is the argument clear, does the author deal with the complexities in the issue, other perspectives, or does the information have no depth, and to what extent is the author's information pertinent to the issue?

The third aspect of the Paul and Elder model is the fostering of intellectual traits of mind. These were discussed in the section on "Traits of a Critical Thinker" (section 2.5) and include the virtues of integrity, humility, confidence in reason, empathy, fair-mindedness, perseverance and intellectual courage and autonomy (Elder & Paul 2009:42). The CPD programme includes the teaching of intellectual traits of mind as part of their programme because they conclude that these dispositions are "bulwarks against sophistic thinking" (Cosgrove 2009:12). According to Paul and Nosich (1993:5) higher order thinking requires more than skills. There are a set of affective dimensions which they refer to as attitudes, disposition or traits. Without this affective dimension, it becomes difficult, if not impossible, to cope with complex and often ambiguous problems that occur in real life (section 2.7).

Cosgrove (2009:33) examines teacher and student accounts of when aspects of the Paul and Elder model are being applied in the classroom. Thus, the extent to which the students or teachers could provide details and substantive

examples of their own learning or application of a critical thinking concept in a specific context, determines for Cosgrove (2009:34) if the response could be considered authentic and trustworthy. He uses the standards of evaluation articulated above, by Paul and Elder.

The Lampton School in West London is a culturally diverse secondary comprehensive school. In 2009, twelve teachers had completed three years of training in the Continuing Professional Development Programme (CPD) which focused on critical thinking. Thus, approximately half of the teachers in the school had been introduced to critical thinking through this programme.

The goals that the teachers formulated were to include more student active learning than they had in the past. This entailed developing more assignments with built-in opportunities for assessment and feedback. Teachers made an effort to teach with less telling and encouraged students to write.

Furthermore, Cosgrove (2009:19) reports that the teachers adopted a more research oriented approach and a less didactic one. Cooperative learning was encouraged and teachers used strategies which enabled students to focus on learning rather than tasks. Students were given ample opportunities to contribute more of their own knowledge based upon their research.

Cosgrove (2009:22) comes to several conclusions after this study, which can be summarised into two categories namely, successful CPD programmes are firstly, those which have practical implications for the classroom and secondly, programmes in which the teachers are actively engaged in their own learning and in supporting the learning of their colleagues.

In terms of having practical implications for the classroom, Cosgrove (2009:23) argues that the most effective strategies used in the classroom, which resulted from this programme, were the metacognitive and process rather than product oriented strategies. They gave students the chance to, ask questions, become part of discussion groups and participate in peer mentoring and feedback. In addition, the teachers clarified to their students

the process and methods by which they would be evaluated and emphasised how they valued their students' autonomous learning.

The second aspect of a successful CPD programme, according to Cosgrove's (2009:23) study, is its ability to require the teachers to continue to be active learners and to support their colleagues in developing critical thinking skills. This is facilitated through mentoring, coaching, discussion groups and observations followed by peer feedback.

Cosgrove (2009:51) notes that those teachers who have not had the benefit of explicit instruction in critical thinking, tend to think of it as a checklist that one checks off as they introduce them into the classroom. However, after this CPD initiative in the Lampton School, the teachers expressed numerous benefits which resulted from teaching for critical thinking. Among them are: it focuses each class on what is most important and makes it clear to the students; it simplifies preparation for lessons because it promotes deep engagement in the subject, which enables students at all levels to progress; and because students are more involved with their learning they remember more and do better on tests. Cotton (1991:17) agrees with these results as she postulates that, training teachers to teach critical thinking leads to student achievement gains.

Cosgrove (2009:55) observed that, instead of higher order thinking being an "add on" to the content, these teachers feel it is a way to teach. In their view and experience, higher order thinking provides a lens through which students see and learn the content. It allows them to internalise it more deeply and therefore understand it better.

In terms of student feedback, Cosgrove (2009:55) reported that students said that they valued the challenges which critical thinking provided as well as the reward of more deeply understanding the material. As part of learning how to critically think they developed tools for analysis and evaluation which they can apply to new situations in other subjects and outside of the classroom. They

also noted that their writing had improved and they felt more comfortable with the language and format of critical critique.

The results of this study support what Von Glasersfeld (1987:43) argues in his paper on, “Learning as Constructive Activity”, “the one thing that is often by far the most reinforcing for a cognitive organism is to achieve a satisfactory organisation, a viable way of dealing with some sector of experience.” This is to say that the reward comes from the achievement, from the student’s ability to successfully impose order on his world, because he deeply understands what he has been learning. The reward for learning is not some external prize, but the ability to understand something which one couldn’t grasp earlier.

2.10.2 Higher order thinking study conducted with disadvantaged students

This study was reported in 2004 by Stanley Pogrow in a paper entitled, “HOTS Reducing the Gap by Accelerating Disadvantaged Students”. Pogrow (2004:3) postulates that the result of his study could apply to EFL or ESL students who are intelligent but don’t have the language skills in the second language therefore, it is a notable study to refer to in conjunction with this research.

The original HOTS programme was a supplemental programme to help disadvantaged students, in 2600 schools in America, to develop intellectually and socially and to increase test scores and overall academic performance. Pogrow (2004:2) states the presupposition was that disadvantaged students were bright; however, they lacked a home environment which fosters creative and intensive conversation. In his study they were treated as “gifted” students. Pogrow (2004:3) further explains why this approach was taken. It was because of the studies done which reveal that the amount of home conversation varies dramatically by economic status and therefore, this program was designed to replace that missing conversation.

Moreover, Pogrow (2004:3) clarifies that the approach developed in this HOTS programme was to create a rich conversation environment in the classroom that combined the use of technology with Socratic teaching techniques, or what we term, “teaching by asking”. The classroom was transposed into an environment where there was little teacher direction and talk to one in which the conversations were designed and led by students who were engaging in the cognitive processes that are the basis of all learning. Those include metacognition, problem solving strategies, inference from context, generalising ideas and information from one context to another and synthesising information.

The results of this 24 year study showed, according to Pogrow (2004:4-5), that the HOTS approach produced far better test score results and far better problem solvers. One of the teachers, in a school whose children came from low income circumstances, measured student growth on 21 outcomes, including metacognition, writing, components of IQ, transfer to novel problem-solving tasks and grade point average. They created two groups. The one group received additional training to develop their higher order thinking skills and the second received extra content help learning the material with the classroom teacher. The students working on higher order thinking skills achieved, across the board, higher test results on examinations and on grades on their written work.

Pogrow (2004:7) attributes the outcomes to the commitment of the teachers to forgo constant drill and preparation for the test. Instead they adapted a methodology in which they posed problems to the students that they were interested in and encouraged them to channel their mental energy into finding solutions.

Pogrow (2004:7) argues that for a HOTS programme to work there are three essential elements that must be put into place. The first is to provide intensive teacher training so that teachers learn how to question, listen and analyse students’ answers, and offer appropriate feedback. The second is to develop the students’ general sense of understanding and the third is to make the time commitment to foster higher order thinking skills in the classroom.

There are several researchers, namely Choy and Cheah (2009: 205), Mashile (2002:174), Lombard and Grosser (2004:215), De Corte and Masui (2009:181), Hunt and Beglar (2005:42) and Zohar (2001:470), who argue that teacher training is an essential aspect of ensuring the success of facilitating critical thinking in students.

Pogrow (2004:3) compares the lack of general understanding in disadvantaged students to ESL and EFL students who do not have the language skills. To develop their understanding the curriculum must be systematic and creative and be driven by higher order thinking questions whose answers are followed-up by appropriate probes.

In terms of the time commitment necessary to develop higher order thinking, Pogrow (2004:3) recommends 35 minutes a day for a minimum of 1-2 years of intense conversation, reading and writing and reflection, before students can spontaneously apply these skills or acquire what Costa and Kallick (2007:20) refer to as a habit of thinking critically. A higher order thinker must repeatedly encounter situations in which they are required to use HOTS to solve problems. It is the accumulation of all of these experiences which enables students to implement higher order thinking in their learning and into their lives.

2.10.3 Content-based reading and writing for higher order thinking in an EFL context

In 2007 Liaw (2007:73) conducted a study on content-based reading and writing for critical thinking in an EFL context. The purpose of the study was to examine the efficacy of implementing a content-based reading and writing approach for critical thinking skills in an EFL class. A five-unit content-based EFL syllabus was designed and implemented and the researcher collected data from pre-test and post-test higher order thinking skills tests, work

samples from students and pre-test and post-test scores of an English language proficiency exam, as well as an end of the course questionnaire.

Liaw (2007:74) postulates the following three questions: Can learners gain higher order thinking skills within a content-based EFL course? What are the effects in promoting thinking skills in an EFL content-based course? What do the participants think about higher order thinking instruction?

The results of Liaw's (2007:76) study proved to be interesting in that the HOTS test results (based on a test designed by Yeh in 2003) showed no significant differences between the students' critical thinking scores before and after having the lessons; however, the students' work samples revealed evidence of HOTS in all six cognitive domains as categorised by Bloom and Krathwohl (1956:15).

Liaw (2007:75) explains the test results by arguing that Yeh's standardised test did not have the capacity to measure the students' performance when they encountered events within the units that triggered the use of higher order thinking. Corich, Norris and McPeck (2007:44) admit that any lists that identify and measure the composition of HOTS are always incomplete. Therefore, it is also necessary to look at how students apply HOTS to their writing and discussions to glean insights into how students use them.

Liaw (2007:75-76) reports that the students performed significantly better on their English language proficiency test after the project and the questionnaire results confirmed that the students enjoyed being able to think and express themselves in English. Even more important was the students' report that their confidence and motivation increased in learning and thinking in English. In addition, they found that they could use the HOTS in other contexts such as mathematics, social studies, and science. Infusing HOTS into an EFL content-based programme not only helped students to develop their English language skills, but also their HOTS in all of their subjects.

2.10.4 Developing students' critical thinking in Hong Kong secondary school classrooms

In 1999, the Curriculum Development Council in Hong Kong issued a critical thinking syllabus to all secondary school English language teachers. The Council made recommendations to the English language teachers requiring them to develop their students' higher order thinking in the content based English language classes. Mok (2010:264) conducted a study which included 1600 recorded minutes of classroom observations to investigate whether the syllabus actually translated into classroom practices. Five teachers participated in her study.

Mok (2010:283) concludes that the five teachers she observed were not adhering to the new curriculum, which admonished the English teachers to develop higher order thinking, communication and creativity skills of their students. There are two major reasons for the failure of the English teachers in Hong Kong to implement the new curriculum syllabus. These include firstly, that the teaching of thinking skills was not an important element in the school curriculum and secondly, that teachers were not prepared to shift from teacher-centred pedagogy to a student centred approach.

Teachers revealed to Mok (2010:265) that teaching higher order thinking had never been their objective. Their job was to teach the English language and this involves classes that are teacher-centred, textbook-centred and test-centred. Pogrow (2004:4) recognises that for teachers to incorporate higher order thinking skills into their classrooms they must embrace a major strategic shift away from supplemental drill and test preparation.

Mok (2010:284) further reports that the teachers reiterated that changes needed to be made in the school and even in the society before a HOTS curriculum could be implemented successfully in the EFL classroom. The teachers felt that they were not consulted to participate in a collaborative effort

to develop this syllabus and there was a sense that it was foisted upon them without their support. In addition, they did not have an understanding of the efficacy of the new curriculum.

The second reason for the failure of this new initiative had to do with the inability of the teachers to change their teaching methods. Mok (2010:281-282) observes that the teachers did not present higher order thinking questions to their students. They did not encourage critical thinking or reflection on their thoughts. They were unwilling to create a space for their students to develop their own thoughts and ideas within the context of the EFL classroom. This was particularly apparent with the short amount of time teachers allowed for students to respond to their questions (Mok 2010:282). The results of Mok's study provide an example of a HOTS programme that failed and the reasons for that failure.

2.11 SUMMARY

The literature shows that there is a consensus among scholars (Facione 1995:3-4; Pascarella & Terenzini 1991:118; Downs 2008:60; Duron 2006:160; Zoller, Barak & Ben-Chaim 2007:353; Halpern 2007:7; Hendrickson 2008:679; Patterson 2011:38; Roth 2010:1; Arendt 2009:2) on the categories of traits which define the skills of higher order thinking, as well as what it means to be an individual that practices higher order thinking. Once those traits are elucidated two things can happen, firstly, it becomes possible to explicitly teach these skills and secondly, it becomes possible to assess the outcomes of higher order thinking within by means of questioning and written assessments.

The historical, philosophical, psychological, pedagogical and societal view of higher order thinking has progressed, from being a quality of individual cognitive and logical thinking, to include aspects of using one's reasoning skills to make moral decisions. This evolving definition of higher order thinking encompasses the autonomous thinker, who is able to question authority, to

the individual and group who continue to learn and evaluate information which rapidly presents itself in the ever changing global environment.

In addition, with new research and discoveries being made in the areas of neuropsychology and neuroscience, one can begin to comprehend the impact of one's feelings and emotions on higher order thinking. Perhaps it is not always possible, or even desirable, to subjugate one's feelings to reason; however, without being able to judge the difference between fact and opinion and to support strong feelings with logical arguments, bias reigns and integrity is sacrificed.

Studies mentioned in this chapter further explore specific pedagogical methodologies for embedding HOTS into a curriculum. The literature shows (Pogrow 2004:7; Wegerif 2002:20; Willingham 2007:8; Norris 1985:43; Shen 1997:259; Holton & Clarke 2006:131; Thomas, Davis & Kazlauskas 2007:340; Jacobs 2003:1; Korkmaz & Karakus 2009:53; Duenas 2004:73; Stoller 1997:1-2; Woolfolk 2005:159) that HOTS must be taught, practiced and reflected upon, if the student is to master the skills and transfer them to new situations. Furthermore, four studies were analysed in terms of their efficacy in measuring the ability of educators to teach HOTS and for students to master HOTS in a classroom setting.

The following chapter discusses programmes and projects in the Israeli school system that incorporates HOTS in the curricula. This includes the latest initiative, an EFL literature programme which infuses HOTS into the English curriculum.

CHAPTER 3
ENGLISH FOREIGN LANGUAGE TEACHING AND HIGHER ORDER THINKING PROGRAMMES IN ISRAELI SCHOOLS

3.1 INTRODUCTION

The aim of this study is to determine the pertinent challenges and key guidelines in introducing and assessing higher order thinking skills (HOTS) in a literature based English foreign language curriculum (section 1.7). The previous chapter provided an in-depth discussion of various aspects related to higher order thinking skills. In this chapter various aspects regarding the teaching of EFL in Israel are presented. These aspects include inter alia the history of EFL in Israel, the influence of Communicative language teaching (CLT) on EFL teaching in Israel, the different curricula that were implemented over a period of time, the extent to which HOTS were prevalent in these curricula and the current (2012) HOTS infused EFL literature curriculum. The appreciation of literature, culture and language levels are also discussed in this chapter as it has a direct bearing on the current literature programme initiative.

Higher order thinking programmes and studies in Israel that provide a background for the creation of the literature programme infused with HOTS are also reviewed. The chapter is concluded with a discussion on teachers' professional development to learn how to teach HOTS.

3.2 BACKGROUND TO THE REVISIONS OF ENGLISH FOREIGN LANGUAGE CURRICULA IN ISRAEL

Israel is a multilingual society. Hebrew is the dominant language for official, public and private use of its approximately 8,000,000 citizens. Hebrew is the language of communication in the work environment, except in the Arab sector. Government ministries publish all official materials in Hebrew. New immigrants are encouraged and aided with public monies to learn Hebrew and

they are discouraged to use other languages in public settings (Shohamy 1994:138; Spolsky 1996:51; Hallel & Spolsky 1993:40). Even though there is an official ideological and policy support for Hebrew as the official language of Israel, English continues to thrive and advance in all sectors of Israel (Shohamy & Spolsky 1996:1; Safran 2005:43). The Ministry of Education's revised Policy for Language Education in Israel (Spolsky & Hallel 1993:39; Kahn-Horowitz, Sparks & Goldstein 2012:21) recognises English as the primary foreign language of the country and makes it mandatory starting from grade three through twelfth in the State School System.

The principles and standards for learning English as a foreign language in Israel have been influenced over the years by three major forces; firstly by English becoming the *lingua franca* in the world; secondly by the Communicative language teaching movement's influence on teaching English as a second and foreign language and thirdly the movement from Behaviourist to Constructivist-oriented methodology in the classroom.

The 21st century has seen an unprecedented global expansion of EFL learning as English has developed as the leading global *lingua franca* (Fishman, Cooper &Conrad 1977: xii). Graddol (2006:70) argues that extensive curriculum reforms are taking place as people are required to operate in this globalised world and improving proficiency in English forms a key part of the educational strategies in most countries, including Israel.

The second factor, the Communicative Language Teaching Movement, which can trace its beginnings to the end of the1960's, through the 1970's (Tarone &Yule 1989:17; Howatt & Widdowson 2004:258; Swarbrick1994:1) evolved into a methodology which promoted communicative competence in the English language). Under the influence of Communicative language teaching (CLT), grammar-based methodologies gave way to functional and skills-based teaching, which includes fluency activities based on small interactive group work (Richards 2006:3; Nunan 2003:6-7).

The third influence, a move from Behaviourist to Constructivist methodology, shifted the EFL classroom from a teacher-centred environment to a more student-centred one and laid the foundation for alternative assessments such as portfolios. The EFL Curriculum prior to 1977 focused on grammar, vocabulary acquisition and literature (oral exam for students in the Government state schools that were not specifically teaching a vocation). Because of the three major forces that influenced EFL mentioned above the 1977 EFL Curriculum, introduced by the English Inspectorate in Israel, emphasised English as a global language of communication and focused on the practical use of the language. This also had an effect on the English literature that was being taught in EFL classes in Israel. The literature syllabus was altered to include more modern works which would contribute to communication skills (Gefen 2012:31).

The 1988 EFL curriculum which replaced the 1977 curriculum stated as one of its aims that English should be taught as a means of heightening intellectual awareness through language study, raising linguistic consciousness and attaining insight into language (Culture Ministry of Education English Curriculum 1988:5). It, however, does not mention, in any of its aims or objectives, the study of literature and relegates literature to part of an oral test given only to students at the highest level of English competency.

It would be another 13 years before a new English Curriculum would be published by the Ministry of Education. In 1994, an English Advisory Committee met and drafted a list of Proficiency Guidelines to explore alternative approaches to teaching English as a foreign language in Israel. It wasn't until 2001 that this Committee's work was published as, *Principles and Standards for Learning English as a Foreign Language for All Grades, English Curriculum* (Culture Ministry of Education English Curriculum 2001). The new guidelines were organised according to the traditional division of language proficiency into the four skills of listening, speaking, reading and writing. These guidelines provided a map for the revision of the matriculation

examinations, referred to as The Bagrut Examinations, which were published in June 1996 (Culture Ministry of Education EFL Curriculum 2001:10).

In 2007 a new national educational policy was adopted by the Israeli Ministry of Education. This policy, called “Pedagogical Horizon for Learning” encouraged an infusion approach to teaching HOTS in which thinking was integrated into the school curricula rather than taught as an independent subject. As part of the integration of critical thinking skills, lessons were also introduced on fostering metacognitive thinking, which coincided with research on Constructivist-based teaching methodology and students becoming self-regulated learners (De Corte & Masui 2009:176; Facione *et al* 1995:7; Korkmaz & Karakus 2009:61; Desoete 2007:709; Von Glasersfeld 1987:48).

In 2008, the English Inspectorate decided that it wanted to bring literature back into the EFL Curriculum as a subject that would once again be a part of the written Matriculation (Bagrut) examinations (Lifschitz 2008:108). However, now the goal was to teach literature using higher order thinking and incorporating critical thinking as part of the benchmarks that students are required to reach. This initiative began with a pilot programme that started with the strongest level of EFL students, namely those who take the five point matriculation examinations (Bagrut) in English (section 3.5.6).

At the end of 2012 the Culture Ministry of Education revised the 2001 English as a foreign language curriculum to “expand the document, resulting in a curriculum that will better address the needs of teachers, material writers and test designers” (Culture Ministry of Education English Curriculum 2012:5). The expansion of the 2001 curriculum includes a number of updated components. Three of those are in the area of higher order thinking skills, information communications technology (ICT) and literature at all levels.

This study focuses on two of these components, namely the facilitation of HOTS and literature. Each of these curricula is discussed in more detail in the subsequent sections.

3.3 THE 1977 AND 1988 EFL CURRICULA

Hymes (1992:39) discusses the concept of "communicative competence" which referred to a learner's need to use language for particular purposes and situations (Klapper 2006:109). The notion of communicative competence gave rise to the communicative approach and communicative language teaching.

3.3.1 The influence of CLT on the 1977 and 1988 EFL curricula in Israel

The realisation that language is not an interlocking set of grammatical, lexical and phonological rules, but rather an instrument for expressing meaning and communicating with others led in the 1970s to a major reappraisal of language learning and teaching that changed the face of language teaching considerably (Nunan 2003:6). This is still prevalent in language teaching methodology theory today (Ur 2011:507). This led to the communicative approach and communicative language teaching, which focused on communication and learner-centredness (Littlewood 2011:541). Larson-Freeman and Anderson (2011:115) states that, "Applying the theoretical perspective of the Communicative Approach, Communicative Language Teaching (CLT) aims broadly to make communicative competence the goal of language teaching."

The many revisions that English curricula in Israel have undergone over the last four decades were initially because of CLT and in later years by the Ministry of Education's recognition of the importance of including HOTS in the curriculum. Beginning with the 1977 and 1988 curricula three areas of curricular goals, which are still prevalent today, began to emerge and develop as essential aims of EFL teaching in the Israeli schools. These are, reading and comprehending literature, developing writing and fostering higher order thinking skills (Ram 2014:103).

Gebhard and Oprandy (1999:44) argue that the communicative approach is complex in terms of planning and has "a tolerance for messiness and

ambiguity" which engenders teachers to analyse their students' needs and design tasks which are meaningful. Teachers, curriculum and assessments which are not sensitive and respectful of students' intelligence and ability to figure things out inductively, through engaging in communicative activities and problem-solving tasks, will not be successful in fostering lifelong learning and understanding in their students.

The EFL curriculum of 1977 attempted to adopt the goals of CLT, but it was only later in 1988 that the goals of the CLT movement, which essentially state that students will develop communicative competence in the targeted language (Richards 2006:2) was fully adopted as the basic principles of teaching EFL in Israel. According to the 1988 Curriculum, communication is considered the major aim of teaching English in Israel. The ability to apply higher order thinking in the EFL classes is at this time relegated to only the most advanced EFL classes.

"The primacy of learners' needs" (Klapper 2006:111) which is one of the principle features of CLT emphasises the importance of a learner-centred approach EFL teaching. This was in particular recognised in the 1988 curriculum (1988:25) which states that the primary aim of teaching English is to provide learners with an auxiliary language as a means of international communication. Therefore, all teaching techniques and methods must be considered and evaluated in terms of their communicative value. In this context communication is not only the goal of teaching but also the means. In other words, students learn to communicate by communicating. The language domains and skills must be taught systematically but also in context and in meaningful ways which include communicative activities.

Central to this methodology is the learner-centred approach to EFL teaching which reflects the communicative methodology (Culture Ministry of Education State of Israel 1988:26). Consistently for all levels, the emphasis is on the students' abilities to communicate in English. From the weakest to the strongest EFL student, the teacher becomes the facilitator of a learning environment in which ample opportunity is given for students to listen and

speak and to read and write about issues which are interesting to the students themselves.

3.3.2 Reference to HOTS in the 1988 curriculum

The 1988 EFL Curriculum recommends that teachers encourage pupils to initiate and control their own learning and that they be exposed to problem solving and decision making activities. Researchers (McLoughlin & Taji 2005:16; Huang 2010:2 ; Kumaravadivelu 2006:135 ; Hajhashemi, Amirkhiz & Yasin 2011:214; Tam 2000:51; Duron, Limbach & Waugh 2006:161; Jacobs & Farrell 2001:2; Abrami, Bernard & Wade 2006:12; Lee 2010:145; Richards 2006:23; Hismanoglu 2005:57; Mok 2010:265) agree that the learner centred classroom is more effective and lasting, in terms of the long-term memory and developing and practicing higher order thinking, than teacher explanations to a passive student audience.

In the 1988 EFL Curriculum it is recommended that the teaching of a new grammatical structure be through the inductive method, promulgated by the CLT Movement. This involves proceeding from the example to the rule and then to creative use and if possible, arriving at that rule through discovery-learning procedures. It is further argued that this technique is more likely to impress the rule on the long-term memory (Culture Ministry of Education State of Israel1988:13). This, by its definition is a method which is contextualised and represents a new approach, one that follows Brumfit's (1984:14) "fluency first" pedagogy. This concept states that students' grammar needs are determined on the basis of performance of fluency and written tasks rather than predetermined by a grammatical syllabus.

What is not present in earlier EFL curricula in Israel is the focus on teaching grammar through the inductive method (teaching from an example and encouraging students to discover the rule) and the inclusion of information-gap activities. These activities, as mentioned in chapter one, are a central part of the CLT Movements' curriculum as they require students to apply what they have learned in meaningful conversations with one another and in their

writing. The advent of inductive teaching methods and the creation of information-gap activities, as part of the grammar lessons in EFL classes, represent a profound difference in teaching strategies from older, pre-CLT Movement methodologies. They also require higher order thinking in that students must apply what they have learned grammatically to new situations.

Even though the use of critical thinking in writing English essays is focused on the more advanced EFL classes in the 1988 Curriculum, interestingly, the English Curriculum, (Culture Ministry of Education State of Israel EFL Curriculum 1988:5-8) includes as one of its aims, the notion of the study of EFL as, “a means of heightening intellectual awareness, through language study, with the goal of acquiring skills of logical analysis, diverse ways of thinking and cognitive flexibility which will enrich them intellectually and culturally”. This is further expounded as a pedagogical objective to teach students expository writing and how to develop a cogent argument.

Thus, critical thinking is informally inserted into the English Curriculum by 1988 as part of the upper school reading and writing objectives. The term “informal” is used because there is no mention of Higher Order Thinking *per se* nor is it delineated to the extent that is found in the 2012 EFL Curriculum (section 3.3). In addition, there is not a discussion on methodology for teaching higher order thinking, only that the outcome of the curriculum should foster these abilities in EFL students. According to Bereiter and Scardamalia (2007:16) and Nagappan (2001:26) it is not enough for teachers to construct the content knowledge of the domain which they teach, in this case EFL, but educators must also be able to teach higher order thinking skills in their English language classrooms for those skills to be learned.

In addition, the 1988 EFL Curriculum postulates that pragmatic competence involves six separate skill sets (Culture Ministry of Education State of Israel 1988:9-10). Among these are two which involve higher order thinking, namely the ability to infer meanings from written and aural contexts and distinguish between what is essential and nonessential information. One skill is particularly important to develop writing ability which is the skill of interpreting

and using repetitions or redundancies or other pause-fillers and features of connected speech and writing. Pragmatic competence in the foreign language involves both reading and writing abilities but also the incorporation of higher order thinking. To infer meaning, interpret usage and cultural allusion and paraphrasing requires the learner to engage in much more than just regurgitating a list of words and grammatical rules.

One could argue that this is the cause for some conflict among English teachers in Israel since higher order thinking has always been part of the EFL Curriculum and incorporating direct teaching of these skills, or forcing the infusion of HOTS into a EFL literature based curriculum, confuses both teachers and students and digresses from the learning of English as a foreign language. This conflict mirrors the debate about whether or not it is more effective to infuse HOTS into the domain subjects or to teach them separately to be practiced in many areas. Cotton (1991:7) states that theorists are divided in half over this issue with some (Gough 1991:1) arguing for infusing higher order thinking skills directly into the subjects while others (Freseman 1990:120; Pogrow 1988:19) argue that teaching these skills separately is more effective.

3.3.3 The teaching and assessment of literature and writing in the 1988 curriculum

Literature becomes part of an external oral examination in the 1988 EFL Curriculum, worth approximately 5% of the overall English Matriculation examination. Two outside examiners (English teachers from a different school) came to the high school and orally tested students on one of the five pieces of literature that they were required to learn during their high school studies (Kopinsky 2014). By 1990, due to budgetary issues, the literature exam was administered internally by the EFL teachers in each high school and by 1991 the learning of literature texts became part of the EFL yearly school grade and there was no separate matriculation examination either internally or externally.

In 1977, assessment of literature was still very traditional as students were tested on their knowledge about “set” texts, texts that reflected assigned materials in the classroom (Culture Ministry of Education State of Israel 1977:31). Students at the high school level were expected to be able to write a coherent composition of a prescribed length, chosen from a number of suggested topics (Culture Ministry of Education State of Israel1977:32) as well as pass an oral examination (Culture Ministry of Education State of Israel 1977:30).

The 1988 EFL curriculum, however, was performance-based and unlike previous language curricula, students’ abilities were to be evaluated in terms of their use of the language rather than their knowledge of rules about the language (Culture Ministry of Education State of Israel1988:8). In other words, the learner’s language proficiency is what is assessed at the end of the programme.

The 1988 EFL Curriculum (Culture Ministry of Education State of Israel 1988:20-21) maintains that reading comprehension is the most important skill to be taught in the school system from grade seven and recognises that reading is an interactive process that includes several higher order thinking skills, although the term higher order thinking as such does not appear in the document. For example, reading skills which are to be taught in the classroom include:

- Inference from the text or a full and detailed understanding of direct and indirect reference to the text.
- Prediction – predicting what will happen next in the text
- Inferring meaning from context-guessing or hypothesis-testing
- Drawing conclusions on the basis of information in the text
- Projective reading or projecting the reader’s personal experiences and knowledge onto the text.

The 1988 EFL Curriculum further states (1988:20) that the ultimate purpose of teaching reading strategies is to foster within the students the ability to respond to a text beyond the plain meaning and to understand humour, irony, emotive language, the writer's philosophy, purpose and sympathies and to distinguish fact from fiction. These are clearly higher order thinking skills which are recognised as necessary in the mastery of reading comprehension.

Abu Shihab (2007:211) argues that foreign language learners employ several higher order cognitive strategies when reading in the foreign language. These include, predicting, analysing, summarising and using context clues. In addition there are other HOTS that apply to reading such as, inference, making connections, guessing the meanings of unfamiliar words and metacognitive strategies are all part of the skills one needs to extract the maximum meaning from a text. The reader interprets the text according to prior knowledge, which means that a text does not have a meaning on its own but can have several different interpretations, depending on the social limitations of those reading the text (Abu Shihab 2007:213).

According to the curriculum goals, it is the responsibility of the teacher to foster the higher order thinking skills in the context of teaching reading. Later, in the 2012 Curriculum, the teaching of HOTS becomes a goal in and of itself; although it is integrated within a literature syllabus.

Reference to the importance of integrating higher order thinking into the EFL curriculum appears as early as 1988; however, the teaching of literary texts is only reserved for the most advanced, upper level pupils. This reflects the influence of the CLT movement which postulates that language should serve as a means for developing higher-order thinking skills in order to apply those thinking skills to situations that go beyond the language classroom (Richards 2006:25). In the beginning of the CLT era, less attention was given to literature and more emphasis was put on dialogues and conversations. Also, the use of authentic texts was favoured in EFL classes because they are more practical in real world situations (Collie & Slater 1987:2; Duenas 2004:75).

Writing skills, according to the 1988 EFL Curriculum for the upper school level, mainly serve as a reinforcement of the other skills. Students taking the high school Matriculation examination in English (Bagrut) must be taught the following styles of writing: apology, advice, invitation, request, congratulations, sympathy, thank you and a letter of application. As with teaching reading, higher order thinking skills are stated as a goal at the high school level.

Liaw (2007:73) discusses the significance of including writing tasks in content-based study as essential to promoting critical thinking. Compositions on social issues, major techniques of essay writing and the development of an argument are among writing techniques that students should master. Moreover, they should be taught how to express their thoughts, feelings and opinions in writing in such a way as to convince interest and inform the reader (Culture Ministry of Education State of Israel 1988:22).

The focus on students developing writing skills in the 1988 EFL Curriculum neglects to discuss the need for teachers to develop the ability to teach writing which promotes both communication and higher order thinking. Lee (2010:143) and Cosgrove (2009:61) examine the gap between helping learners cope with the challenges of writing in an EFL setting and teachers' limited knowledge on how to teach writing. The inclusion of higher order thinking in written tasks requires a certain level of understanding of those skills on the part of the teacher and the ability to teach them to the students.

With the publication of the handbook for the literature programme (2010), which integrates higher order thinking into the EFL Curriculum, the gap is partially remedied. The Ministry of Education prepared teacher materials, including a website and courses to enable teachers to develop the knowledge base and skills to teach higher order thinking and high level discourse strategies. This is discussed later in this section 3.7, teachers' professional development in HOTS.

The goals of the 1988 EFL Curriculum (1988:23) specifically state that students must be taught the skills involved in comprehending and producing

longer units in reading, writing, listening and speaking. Discourse strategies involve the teaching of the logical development of the ideas, the main points and minor points and the relationships between the parts to the whole. This is one of the stated HOTS in the 2012 Curriculum: the relationship of the parts to the whole.

In the 1988 EFL Curriculum, discourse strategies had to be taught via all the language skills; listening comprehension, reading comprehension, speaking and writing. As a general rule, the 2012 Curriculum (1988:23) states that the receptive skill of listening should precede the productive skill of speaking, just as the receptive skill of reading should precede the productive skill of writing. However, remaining true to the CLT influence of the importance of integration of skills, as well as Constructivist theories of learning, researchers (Duenas 2004:79; Liaw 2007:75; Lee 2011:135; Sinem 2011:110) recognise that all four skills should be used in close proximity to one another in active learner-centred programmes with students. The CLT Movement forever changed the way English was taught in the Israeli classroom as it endeavoured to provide learners with a language that became a means for them to engage in communication with the people of the world.

3.4 Principles that Underlie Language Learning and Teaching in the 2001 EFL Curriculum

In 1998, an initiative by the Pedagogical Secretariat of the Ministry of Education, Culture and Sport, spearheaded the effort to approve a standards-based curriculum for teaching English as a Foreign Language in Israeli Schools. The recommendations were fully realised in the 2001 EFL Curriculum which defines a shared set of standards and benchmarks students are expected to reach.

The domains include appreciation of literature, access to information in both written and spoken English and presentation in both spoken and written English. These three areas are discussed as they have a direct bearing on

this research on students' reading comprehension of literary pieces, applying previous knowledge to something new, which is higher order thinking and presentation in writing. The initiative recognises that language learning is a communicative skill which reflects cognitive processes (Schunk 2004:393; Deutsch 2007:5) further acknowledging the role of strengthening higher order thinking skills in order to master language learning and language production, especially in the area of written communication (Culture Ministry of Education State of Israel 2001:29).

In addition, the 2001 EFL Curriculum introduces grading rubrics which become standard practice for measuring presentation in both written and spoken English in the EFL Curriculum. Evaluating the effectiveness of the curriculum requires authentic assessment of student performance-based tasks (Deutsch 2007:1).Using rubrics as an assessment tool (Becker 2010/2011:124; Reddy 2007:5; Goodrich-Andrade 2001:14) remains a viable and reliable method for measuring students' progress in learning.

According to Inbar (2008:3) the impetus to create this new curriculum, came from government bodies, the Ministry of Education, universities and the chief or local English inspectors, as well as from schools, parents, students and teachers as a result of the realisation that the current matriculation teaching and examinations were not meeting students' needs for purposes of success in the global economy of the future. This curriculum dispenses with the dictated sequencing of grammar teaching and takes the approach of standards and benchmarks, in relationship to domain rather than skill-oriented goals, and requires knowledge in the assessment arena (Inbar 2008:3). Thus a teacher becomes more autonomous in deciding what components he/she wants to emphasise in the classroom. Goals are made explicit so that they can be reasonably met by teachers in the field (Ferman 2005:19).

3.4.1 Standards, domains, benchmarks and criteria

The 2001 EFL Curriculum (Culture Ministry of Education State of Israel 2001:3) affirms the National needs to establish standards in order to equip students with the knowledge of English that the modern world demands. It sets standards in the four domains of language learning: social interaction; access to information; presentation and appreciation of literature, culture and language. By the end of the twelfth grade students should be able to interact effectively in English in a variety of situations, obtain and make use of information from a variety of sources, present that information in English in an organised fashion and appreciate the literature, culture and nature of language in other societies (Culture Ministry of Education State of Israel 2001:11).

A standard, in the field of education, defines a cumulative body of knowledge and set of competencies that is the basis for quality education (Culture Ministry of Education State of Israel1998:1). In other words the standards express what all students should know and be able to do; however, they do not dictate pedagogy or how teachers should teach their students to meet the benchmarks of the standards set (Dudzik 2008:80; Orland-Barak, Kemp, Ben-Or & Levi 2003:322). A standards-based curriculum no longer measures what students know, but rather what students are able to do. The teacher becomes the developer of the curriculum because the content and materials are flexible with regard to the four domains.

The reasons for setting standards in EFL have several advantages. Firstly, it expresses clear expectations of what students should be able to do with the language. Secondly, standards enable teachers to design curricula and assessments based upon what students should know. It thus helps to make both instruction and assessment consistent (Steiner 2013:1).
Standards require a change in teaching and assessment. In a traditional curriculum the content that students learn is determined and the purpose of testing is to measure whether or not the students learned it. However, several scholars (Short 2000:1; Steiner 2013:12; Inbar 2008:385; Deutsch 2007:4;

Zohar 2010:13) would agree with the move from behavioural methods to a constructivist approach to knowledge acquisition in which assessment is no longer about testing students on accumulated facts but focuses on how they are able to apply their knowledge in real situations.

Each one of the four domains has a standard, levels of progression, criteria and benchmarks. Benchmarks are indicators of progress within each domain which are cumulative and interrelated. They describe the abilities that students need to develop in order to achieve the standards for a specific domain. They are divided into three levels and each level into three stages. Each stage is approximately one school year. The benchmarks are written as performance-based tasks. For example, “Students will be able to do…” Criteria are identified for each of the four domains (Culture Ministry of Education State of Israel 2001:5).

The domain of Presentation and Access to Information refers to formal spoken and written English. It emphasises the skill of presenting information and ideas in speech and in writing. The expectation or standard is that the students will be able to present this information in an organised and planned manner on a wide range of topics in a variety of formats. By creating a specific domain for “presentation” the 2001 curriculum committee formally expresses the importance of students developing skills in writing in the English Language. Guidelines for writing rubrics were created (Gordon, Kemp, Levi & Toperoff 2002:75) and were, for the first time in the EFL Curriculum of Israel, published in the Assessment Guideline for the English Curriculum (Gordon *et al* 2002:18).

At the foundation level the benchmark for the domain of access to information is that students will be able to obtain and use information from short oral and written texts through various media that deal with familiar topics. Interestingly, at the foundation level students are expected to obtain information from linguistically simple texts by applying their knowledge about vocabulary, syntax, simple discourse markers, text structure and punctuation (Culture Ministry of Education State of Israel 2001:22). Applying knowledge is one of

the higher order thinking skills students are expected to master in the 2012 Curriculum (section 3.7), but as several researchers (Shen 1997:258; Ghabanchi & Moghaddam 2011:14; Mok 2010:309; Jacobs & Farrell 2001:3; Beaumont 2010:18; Liaw 2007:49; Pogrow 2004:8; Sidhu, Chan & Kaur 2010:54) argue it is simply not possible, even at a foundation level, to understand a text without applying previous knowledge to access information from that text. In other words, understanding, especially in a foreign language, requires higher order thinking.

3.4.2 Teaching literature according to the 2001 EFL curriculum

The standard for the *Appreciation of Literature and Culture* emphasises the importance of developing a sensitivity and understanding of people from different cultural backgrounds. It recognises that English literature is shared by many people from a variety of countries throughout the world who are both first and second language speakers. The Curriculum allows the teacher and the course book publishers the leeway to choose the literature that will be read and taught in the classroom. Furthermore, this standard recognises that theatre, music, film, traditions and symbols are other avenues in which students can develop sensitivity to a variety of cultures (Culture Ministry of Education State of Israel 2001:21). The study of literature as an important vehicle to learn English as a foreign language is recognised by many researchers (Sidhu *et al* 2010:54; Shang 2006:3; Derakhshan, Khatib &Rezaei 2011:202; Ng 2009:39; Hismanoglu 2005:57). Teaching literature as a subject is not only compatible with a focus on the development of English fluency but it can also promote higher order thinking.

From the foundation to the proficiency levels of the 2001 EFL Curriculum, there is the expectation that students will become acquainted with and relate to literary texts written in language appropriate to their age and interest. Students should become aware that their culture and language is different from other people's language and culture (Culture Ministry of Education State of Israel 2001:23).

The emphasis is on literature being a medium to expose students' to other cultures and the English Language; however, without acknowledging it, students are asked to compare their language and culture to others. Thus, the study of literature presupposes that Israeli students will utilise higher order thinking by analysing and comparing both the stories and the cultures from where they emanate to their own experiences. Sidhu *et al* (2003:55) argue that literature fosters genuine communication in the classroom and that these discussions, along with working out the multiple ambiguities of the characters and plots, develop students' creative and critical thinking skills.

The 2001 EFL Curriculum integrates the topics of literature, culture and language together; however, students were not tested on their understanding of a specific piece of literature or another culture outside of their own. Gefen (2012:31) argues that when testing literature was dropped from the EFL matriculation examinations in the1970's teachers stopped teaching it, because "what's not tested is not taught", meaning it is not studied seriously.

To partially remedy this situation, in 1985 the Ministry decided to make literature part of the oral examination in which students were expected to discuss the contents of one of the literary pieces they had studied in class. Teachers and examiners were provided with a guidebook which included a "scale of marks (grades)" for fluency and accuracy. In addition to "fluency" and "accuracy", students who took the five point matriculation examination were expected to exhibit "literary competence" in which the examinee was able to narrate the contents, make inferences from the events to the main pragmatic meaning and make relatively complex inferences to the historical, social or psychological context of the story (Gefen 2012:31; Kopinsky 2014).

By 1995, literature was dropped from the format of the oral examination and teachers and courseware publishers were given the freedom to decide what pieces of literature they wanted to introduce into the classroom and give an internal grade that would be tested and graded by the student's teacher, as stated by Kopinsky (2014). This grade would be weighted as part of the

student's in-class-work, which is averaged into a final grade with the mark received on the English matriculation examination. This remained the policy until 2008 when literature, once again, became an integral part of the four and five point written matriculation examinations. The teaching of literature, as well as the portfolio or examination, is now integrated with the teaching and assessment of higher order thinking skills.

Performance-based teaching and assessment is at the core of the CLT Movement in that its approach to education enables students to use their knowledge and apply their language skills in realistic situations. Klapper (2006:112) refers in this regard to "authenticity of language and materials".

According to Spector-Cohen (2007:2), in performance-based tasks each unit targets authentic purposes for learning in a foreign language which requires students to produce something using real-world contexts. Avery, Beach and Coler (2003:37) also agree that performance-based teaching, which focuses on process as well as products, taps into higher level thinking. By focusing on the process, performance based teaching stimulates the development of other dimensions of learning such as the affective (emotional), the social aspect and the metacognitive aspect of learning.

Finally, performance-based teaching helps students to develop skills which make them more independent and critical thinkers. This is reflected in the metacognitive aspect of learning, a part of performance-based education. Skills such as reflection and self-assessment contribute to the learning process (Costa *et al* 2007:222). When students are required to think about what they are learning, how they learn and how well they are progressing, this enables them to develop their own strategies for success in utilising the foreign language.

3.4.3 Performance-based assessment

In the 2001 curriculum, assessment also reflects the new standards and rather than focus on methods which concentrate on memorising information, it

aims to develop measurements for understanding and applying the language. Thus a variety of assessment methods which allow students to demonstrate their knowledge and assessment tasks which are integrated within the learning-teaching-assessment process and not just focused on a final product are proposed (Ferman 2005:19).

The move from a Behaviourist model of language teaching to a Constructivist model shifted the single responsibility of learning and assessment from the teacher to include the student (Russell & Schneiderheinze 2005:7; Shaughnessy 2004:174). Woolfolk (2005:161) further argues that we need to, as part of empowering our students to higher self-efficacy and self-regulation, teach them to evaluate and assess their own work. This recording and reflecting on growth and setting goals is incorporated into the 2001 EFL Curriculum.

In the year 2000 a five year project which aimed at moving from the nationwide traditional examination system in Israel to a school-based alternative embedded assessment, was conducted with 22 high schools from various communities in Israel. The project aimed at fostering deep understanding, HOTS and students' engagement in learning through alternative teaching and embedded assessment methods (Dori 2003:34). Although the original study was conducted in chemistry and biology classrooms, the findings had direct implications on the EFL Curriculum of 2001. The researchers (Dori 2007:47) involved with the Matriculation 2000 study concluded that, when performance-based assessment is integrated into the learning process and alternative assessments such as, portfolios, projects and collaborative work are offered in addition to "paper and pencil" tests, students develop higher order thinking skills. As a result, their learning is more meaningful than the learning that takes place with traditional assessment methods.

The performance-based assessment is used to directly and systematically observe the student's performance of each task. The performance is assessed according to pre-established performance criteria, in which both the

process and the end result of the students' work are graded. Many performance assessments include real-life tasks that also call for higher-order thinking (Richards 2006:35).

Effective classroom assessment involves different methods which evaluate evidence of learning over a period of time. Assessments can be divided into two types; formative assessment and summative assessment. In both types of assessment models, the role of the pupils is emphasised as they are encouraged to take an active part in the process of assessment, setting goals, measuring their progress and creating opportunities for peer assessment (Ferman 2005:20; King *et al* 2013:2).

3.4.3.1 Formative assessment

Formative assessment involves monitoring students' progress and giving meaningful feedback on their performance. This enables them to advance in their learning. The information gleaned from formative assessments can be used by the teacher to plan further tasks and instruction that focuses on the gaps in the students' knowledge or skills. Formative assessment serves as the basis for an on-going teacher-student dialogue on the student's progress (Stiggens, Arter, Chappuis & Chappuis 2007:7).

3.4.3.2 Summative assessment

Summative assessments provide information on the quality of a student's performance of a task. It assesses the student's ability to achieve the benchmarks and standards of the curriculum. Summative assessment allows for different levels of progress in student's language development (Stiggens *et al* 2007:5). The 2001 EFL Curriculum emphasises the importance of allowing for alternative assessment tools in summative assessment. These include projects, portfolios as well as summative examinations, many of which are marked with grading rubrics developed for each task, domain and benchmark delineated in the 2001 EFL Curriculum (Gordon, *et al* 2002:18; Grabin 2007:56).

Although the ideal in the 2001 EFL Curriculum is to encourage teachers to implement alternative assessment models in their teaching, Grabin (2007: 236-237) in her research on, “Alternative Assessment in the Teaching of English as a Foreign Language in Israel”, notes that teachers continue to use traditional assessment as opposed to alternative assessment (e.g. projects, group work activities) for a number of reasons. Some of those include: they feel it is best for weaker students, it closely mirrors the matriculation examinations which students will be required to pass at the end of high school, and the feeling that the students gain little from alternative assessments, compared to the amount of work the teacher has to do to create it and grade it. It is not until 2008, when higher order thinking skills infused into the new EFL literature programme began, that the literature log (portfolio) assessment was officially accepted as an alternative to the matriculation examination (Bagrut).

3.4.4 Grading Rubrics

One of the challenges from moving to a performance-based curriculum is reporting the students’ progress. The traditional report card with a letter or number grade and perhaps a short comment is neither reliable nor valid as a means to report the complex group of abilities required for language proficiency. EFL teachers are encouraged to include a profile of language abilities. Some of these are significant non-linguistic criteria such as ability to work independently and in a group; active participation; progress; investment in learning the language and bringing materials to the classroom. The authors (Gordon, *et al* 2002:18), of the EFL Assessment Guidelines for the English curriculum of 2001, propose that rubrics, which demonstrate levels of performance, be included in progress reports to students and parents.

A rubric is a scoring tool outlining required criteria for a piece of work, or what is important to assess (Becker 2010/2011:113; Wolfe & Stevens 2007:3). A rubric indicates the weighting that has been determined for each criterion and describes what the performance would look like at different quality levels.

Ideally, teachers and students should develop the rubric together before beginning the task or tasks to be evaluated so that the criteria can be internalised and the students will understand on what bases their work will be assessed.

The unique aspect of the rubric is that, unlike a traditional grade, which summarises each part of a task into one letter or number, the rubric provides information on the student's performance of each criteria at each level. Thus it reveals a profile of the student's ability for both formative and summative purposes. One of the advantages of using a rubric is that it increases validity, reliability and fairness in scoring and provide for more objective and consistent assessment EFL Assessment Guidelines (Culture Ministry of Education State of Israel 2002:18). Because of this reason the current study on students' written bridging essays made use of a rubric to increase the reliability and validity in measuring student writing outcomes. Because more than one assessor was used, it also allowed for more consistent and objective assessment.

3.5 HIGHER ORDER THINKING PROGRAMMES AND STUDIES IN ISRAEL

Higher Order thinking Programmes in Israel began in the 1980s with the *Instrumental Enrichment Program* developed by Reuven Feuerstein. The aim of this programme is to improve the learning ability of the individual through developing his thinking skills. (Blagg 1993:xi) Later, in the1990s, the Branco Weiss Institute for the Development of Thinking was established with the purpose of developing the thinking of children in the Israeli educational system (Harpaz 2013:163). *Thinking in Science Classrooms* is another Israeli project that was established as a result of the Harary reform of 1992. The High Committee for Science and Technology Education published the Harary report called, *Tomorrow 98*, which led to the integration of higher order thinking skills into the science curriculum (Weinberger & Zohar 2000:95). The 1988 and 2001 curricula, as well as these programmes provide the background for the later initiative of infusing higher order thinking skills into a

literature based EFL curriculum in Israel. They are therefore briefly discussed to give a perspective and foundation for this current study on students' higher order thinking skills as they are presented in their writing in the EFL literature programme.

3.5.1 Instrumental Enrichment Programme

One of the first and most influential projects in Israel is the programme called, *Instrumental Enrichment*, its goal is to improve the learning ability of individuals through developing their thinking skills (Abell 2001:100) This program was developed by Reuven Feuerstein, who until March 2014, was the head of the Feuerstein Institute. Feuerstein founded the theory of Structural Cognitive Modifiability in which he argues that human beings have the unique propensity to change or modify the structure of their cognitive functioning and to adapt to the changing demands of a life situation (Falik & Feuerstein1979:18).

According to Feuerstein, (Falik &Feuerstein1979:18) this capacity for change is connected to two kinds of human interactions which are responsible for the development of differential cognitive functioning and higher mental processes. They are; direct exposure to learning and the mediated learning experience. Mediated learning experience is the quality of human-environment interactions. The idea is that one person; the educator for example, mediates between the stimulus of the environment, or what needs to be learned or understood, and the organism, or the student. This theory places the emphasis on the H (human/teacher) interposing himself between the S (stimuli/environment) and the O (organism/child) as well as between the O (organism/child) and the R (response). Feuerstein's theories further state that human development is socio-cultural as well as biological and that intelligence is the "propensity of the individual to undergo changes in the direction of higher levels of adaptability" (Feuerstein & Jensen 1980:412).

Feuerstein's belief, that teaching thinking skills directly in a separate programme will automatically have an impact on the person's ability to utilise higher order thinking, is referred to as the "central processor model" (Wegerif 2002:16). Feuerstein (Feuerstein & Falik 1979:18) argues that intelligence is not a fixed entity but a function of experience and mediation by significant individuals (such as parents teachers and caregivers) in a person's life (Costa & Kallick 2007:9).

Although Feuerstein's theories have had a special impact on learning disabled students, his philosophy and institute develop many didactic tools for all levels of learning. His methods are applied in educational settings as a curriculum for enhancing thinking skills to support the content of the classroom and to prepare individuals to adapt to new demands of the world and the workplace.

3.5.2 Branco Weiss Institute for the Development of Thinking

The Branco Weiss Institute for the Development of Thinking was established in 1990 with the aim of developing the thinking of children in the Israeli School System. The Institute produces learning modules for teachers and students and translates books on critical and creative thinking and intelligence into Hebrew. Branco Weiss also has a number of schools around Israel which are run according to the vision of schooling which is based on the creation of the *Community of Thinking Model* (Harpaz 2005:137).

According to Harpaz (2005:142), the *Community of Thinking* cultivates a task involvement state of mind in which a person cares about the task at hand and there is a state of unity between the subject who learns and the object which is learnt. Learning is really about understanding which means that one can take that concept, skill or domain of knowledge and apply it to a new situation. Harpaz outlines ten conditions for effective learning which are fundamental to the Community of Thinking and the Branco Weiss philosophy. Some of these conditions which encompass higher order thinking are mentioned below (Harpaz 2005:137-139):

- Effective learning is not a result of passive absorption of contents but of their active construction.
- Effective learning results when the learner finds answers to insights, concepts or values and delves into it to clarify rudimentary understandings.
- Effective learning results from intrinsic motivation; the interest in the topic studied and not just from a reward or fear of punishment.
- Effective learning is at its best when it occurs in authentic situations in which the learner struggles with real problems that affect his life.
- Effective learning is a result of positive attitudes when a student feels comfortable in their learning environment with their teachers and peers.
- Effective learning takes place when there is ongoing and informative feedback.
- Effective learning is affected by how the learners relate to their efforts and achievements and not just to their abilities. This is a result of the learner's productive theory of learning and information on how one learns or metacognition.

All of these theories of effective learning have found their way into the Israeli school system since the 1980s. Various changes in the curriculum over the years continue to incorporate these ideas of higher order thinking or critical thinking into each of the subject areas taught in Israel. As with all change, the philosophy does not immediately trickle down to the classroom. Israel's Pedagogical Horizon's programme (section 3.5.5) endeavoured to enable that change to happen.

3.5.3 Thinking in Science Classrooms

The *Thinking in Science Classrooms* project was established as part of an educational reform of The Higher Committee of Science and Technology Education, whose work resulted in the Harary report of 1992. This Committee

was formed to examine the state of science education in Israel (Weinberger & Zohar 2000:98; Abell 2001:99). The goal of the project is to create learning activities which aim to infuse higher order thinking skills into the science classroom. The idea is for a set of opportunities, calling for “thinking events”, to take place in multiple science topics. The contents match topics from the regular science curriculum so that teachers may integrate higher order thinking activities whenever they teach a section of the regular syllabus.

The Thinking in Science Classrooms project was the first established by the Ministry of Education to attempt to formally engage students in reasoning skills and in metacognitive activities that include; generalisation, identification of skills and formulation of rules regarding those skills. To prevent students from developing fixed patterns of learning, the designers (Weinberger & Zohar 2000:100; Abell 2001:99) of the program created varied types of learning activities that included: 1) inquiry and critical thinking skills learning activities; 2) investigation of micro worlds; 3) learning activities designed to foster argumentation skills about bioethical dilemmas and 4) open-ended inquiry learning activities. The TSC project differs from a regular science curriculum in three distinct ways:

- The project increases the quantity of tasks that require students to perform cognitive procedures involving higher order thinking.
- The project refers to thinking objectives as a distinct educational objective that requires special pedagogies.
- The project aims at teaching thinking objectives in an explicit and systematic way.

In addition, the TSC project includes in-service and pre-service staff development courses to train teachers on what is meant by higher order thinking and the rationale for integrating it into science lessons, the instruction of higher order thinking and how to infuse it into the lessons, and the assessment of higher order thinking. Subsequent Education Ministry projects used this model to teach educators what higher order thinking entails, how to

integrate it into the classroom and what tools to use to assess the results of these programs. The most recent is the infusing of higher order thinking skills into the EFL curriculum, which is central to this research.

3.5.4 Studies on the effects of meta-strategic knowledge on low and high achieving students

Four studies were conducted in the early 2000s on teachers' beliefs about low and high achieving students in the Israeli school system. Zohar and Dori (2003:146) were motivated to carry out these studies as a result of fieldwork in teachers' professional development workshops, which were designed to prepare teachers for instruction of higher order thinking skills in the science classroom, as part of the Harary reform. Although Zohar, Degani and Vaaknin (2001:470) found that teachers' attitudes are generally favourable toward instruction of higher order thinking skills, many teachers express that this pedagogic goal is mainly appropriate for high achieving students and that low achieving students, who have trouble with mastering lower order thinking skills, are unable to cope with higher order thinking tasks.

This notion may originate from two beliefs. Traditional learning theories based upon Behaviourism advocate learning as linear and sequential (Von Glasersfeld 1987:43; Zohar & Dori 2003:148; Shen 1997:250; Tam 2000:54; Mok 2010:150; Jacobs & Farrell 2001:2). In other words, this means that learning objectives in a subject progress from simple lower cognitive tasks to more difficult ones. The belief is that until a student masters the basic skills or facts, they are not able to move to more complex tasks or thinking. The problem with this type of hierarchal view of learning is that a low achieving student may never have the opportunity to engage in critical thinking activities in an environment designed for thinking and understanding.

A second similar belief, held by many of the teachers in these four studies, is that when students are divided into levels, even if complex learning is introduced in lower level classrooms, it must be broken down into simple

steps and until each step is mastered the students cannot move to the next step. Therefore, low achieving students may chronically experience lower order instruction because teachers perceive these students as “stuck” in the early phases of the learning process (Zohar 2004:158; Rossi & Pace 1998:380; Even & Kvatinsky 2008:957; Torff 2006:39; Torff & Sessions 2006:78). The outcome of these beliefs is that teachers tend to engage high achieving students in thinking activities much more than low achieving students.

The results of all four studies, for fostering students’ higher order thinking skills in the context of science and technology education, reveal a similar pattern of findings. Students with both high and low academic achievements gain significantly from the educational interventions. The empirical evidence shows that instruction of higher order thinking skills is appropriate for students with high and low academic achievements alike (Zohar & Dori 2003:173; Torff & Sessions 2006:89). The studies (Zohar & Dori 2003:174; Torff 2006:46; Even & Kvatinsky 2008:980; Pogrow 2004:9) show that by the end of the programmes which integrate higher order thinking into the classroom curriculum, the development of all students’ thinking skills improve relative to each student’s initial starting point. Although the high achievers gain higher reasoning scores than the low achievers, in some cases the gap between low and high achievers can be narrowed.

These studies have serious implications for educators and curriculum writers in terms of teachers’ beliefs about low achieving students and higher order thinking. The difficulties of implementing a new curriculum initiative to teach higher order thinking is in itself a challenge to traditional ways of teaching; however, to argue that critical thinking is not to be limited to students who are high achievers, requires a deep restructuring of teachers’ beliefs and a significant change in their views about the nature of teaching and learning.

3.5.5 Pedagogical Horizon Programme

In 2007, the Israeli Ministry of Education adopted a new national educational policy, called *Pedagogical Horizon for Learning*. The main idea was to move from rote learning and routine problem solving towards instruction that emphasised thinking and deep understanding (Zohar 2010:3). Although, there had been many projects which implemented higher order thinking skills in the classroom in Israeli schools in the past, most of these projects did not succeed in changing the teaching and learning in the Israel school system. The perception was that rote learning was being overemphasised in the classroom and in the matriculation examinations, and that the learning and application of higher order thinking was not part of the explicit curriculum (Zohar 2008:77).

When *Pedagogical Horizons for Learning* was first published, in 2007, the rationale for the new policy was phrased in desired outcomes of the new programme. Zohar (2010:3) argues that future graduates will not be able to rely on a defined body of knowledge that they have acquired at school; rather they will need higher order thinking abilities, the ability to make judgments, and the skills for creative and critical thinking, all of which will enable them to attain new knowledge throughout their lives.

The *Pedagogical Horizons for Learning* encouraged an infusion approach to teaching HOTS in which thinking is integrated into the school curricula rather than taught as an independent subject. As part of the integration of HOTS, lessons were also introduced on fostering metacognitive thinking, which coincided with research on constructivist methodology and students becoming self-regulated learners (De Corte & Masui 2009:176; Facione, Giancarlo & Facione 1995:7; Korkmaz & Karakus 2009:61; Desoete 2007:709; Von Glasersfeld 1987:48).

The Ministry of Education decided that in order to be successful with the new programme they would develop a three pronged approach (Tamir 2006:16). Firstly, they decided to introduce changes to curricula standards and learning

materials, secondly, they introduced changes to professional development and thirdly, they introduced changes to assessment. The area of professional development consisted of intensive in-service courses with superintendents, instructors, teachers and potential teachers in teaching colleges around the country.

Studies in the Taub Centre's State of the Nation Reports (Ben-David 2011:16; Ben-David 2009:4; Wolff & Breit 2012:7) show that about half of Israel's children receive an education that is beneath the level given in the First World. The results of these reports continue to show the importance of implementing curriculum which would not just enhance test scores, but foster higher order thinking abilities that could be applied to all facets of students' lifelong learning goals.

One of the most challenging areas for desired change is in the area of assessment. The Israeli matriculation examinations (Bagrut), which had not changed for many years, traditionally assessed knowledge of facts and the solving of routine problems. With the implementation of the new Policy, changes in the Bagrut examinations began to occur. Those changes took the form of slowly increasing the percentage of HOTS questions in written examinations, gradually adding inquiry projects as part of the final matriculation examination scores, and increasing the component of portfolio assessment as part of the final matriculation score in science, literature and English (Zohar 2010:5; Deutsch 2007:5; Gallagher, Hipkins & Zohar 2012:141). In addition, new rubrics were designed for scoring students' answers on the HOTS questions.

Bureaucratic and administrative pressures, government elections, teachers' unions' actions and budgetary constraints, all impact on the success or failure of a new programme ever reaching the classrooms of the country. Zohar concludes (2010:14), "Introducing a change in one element of the system might induce changes, which can be quite unexpected in other elements of the system. The final form of the system will depend on the balance among innumerable factors and forces".

There are thus many forces that come into play when trying to implement a new curriculum. Those variants involve inter alia, a change in the ministry of education who may have different priorities than the previous one, or teachers' unions who are not prepared to foist changes upon their teachers or the national educational budget which might restrain the ability to establish new policy and then assess whether or not it is successful. This is one of the main motivations for this research study, to begin to determine the efficacy of the new literature curriculum, which incorporates higher order thinking, on the outcomes of students' bridging essays.

3.5.6 2008 Pilot programme for formally introducing HOTS into the EFL curriculum through literature

In 2008, the English Inspectorate decided that it wanted to bring literature back into the EFL Curriculum as a subject that would once again be a part of the written matriculation (Bagrut) examinations (Lifschitz 2008:108).

In line with the Culture Ministry of Education's commitment, from the beginning of the 1990s with the Harary Report (Abell 2001:99), to incorporate higher order thinking into the Israeli classroom, the goal of the new literature curriculum was to teach literature using higher order thinking and incorporating critical thinking as part of the benchmarks that students are required to reach. The rationale for integrating higher order thinking into the EFL literature curriculum in particular is based on a number of studies (Freseman 1990:26; Pearson &Taffy 1982:240; Pogrow 1988:23; Zohar, Weinberger & Tamir 1994: 184) which show an increase in students' over-all academic performance when thinking skills are taught directly and then infused into the content area. Swartz, Costa, Beyer, Reagan & Kallick (2010:35) claim that students who are taught critical thinking in content areas show improved learning in those content areas but also in the quality of their lives and in their work after they leave school.

The pilot programme for formally introducing HOTS in the EFL curriculum through literature that was implemented in 2008 started with the strongest level of English students, namely those pupils who take the five point matriculation examinations in English. Five point students must pass three modules, Module E, Module F, and Module G and an oral examination worth 20% of their overall final result. Module E consists of a reading passage with questions and a listening passage with questions. Module G consists of a challenging reading passage, questions, and a written essay based upon the student presenting their opinion on a given topic. Module F, under the 2008 pilot programme, became the literature programme with the incorporation of HOTS.

Each thinking skill in the programme is taught either inductively or deductively by the teacher and then applied to the literary text which is studied. Both the literature log (portfolio) and the literature Bagrut examination enable teachers to assess their students' progress towards attaining the proficiency for benchmarks for the domain of *Appreciation of Literature and Culture* which are part of the 2001 EFL Curriculum. This includes (Lifschitz 2008:109):

- recognising the use of literary techniques in a variety of genres;
- interpreting literary texts;
- comparing and contrasting literary themes and relating to them from a personal perspective; and
- being aware of the author's background and the cultural, historical and/or social themes in literary texts or other cultural products.

In addition, both the literature log (portfolio) and the examination assess the students' ability to understand at least six of the HOTS taught over a two or three year period in the programme (appendix G).This is measured with analysis questions pertaining to the literature texts tested and questions that require students to answer with a specific HOTS and explain "how" they used it to arrive at the answer to the analysis question. Furthermore, students are

expected to be able to define literary terms and include them in their answers as part of the analysis section of the literature log and literature examination.

The literature programme for EFL students in Israel provides for two options for summative assessment, either the external matriculation examination (Bagrut) or the internal portfolio called the literature log. In this study the term literature log was used instead of portfolio when referring to all of the work collected for each literature unit studied. The literature log includes all of the formative and summative assessments that the student has completed over the two or three year period of the course, along with written feedback from the teacher. With the completion of the literature log, the student is able to see the process of his/her learning, the successes and difficulties along the way and to understand how the teacher arrived at the final grade.

The external examination does take into consideration the collection of individual summative assessments from each literary unit completed and formative assessments over the course of teaching the units in the literature log (this is 50% of the final matriculation examination grade for the programme and the other 50% is the grade on the examination itself). Both of these choices for assessment have their positive and negative features, as discussed below.

3.5.6.1 The literature log

When the English Inspectorate decided to allow literature logs as an alternative assessment option for the Literature Bagrut, both the advantages and disadvantages of each option were discussed. It was decided (Lifschitz 2008:108) that both the standardised examination and the literature logs had enough positive aspects that they would allow each school to decide which assessment option to choose for their students.

The literature log consists of seven sections for each piece of literature studied. These include a pre-reading activity, basic understanding questions (including vocabulary), analysis and interpretation (higher order thinking questions and literary terms), bridging essay (this requires the student to write

a short piece, called a “bridging essay” consisting of one to three paragraphs utilising the HOTS of “making connections” between an unfamiliar text or quotation which usually has information about the author’s background, or the historical, political and social issues surrounding the literary text), post-reading activity (often a creative writing piece or opinion piece), reflection (metacognitive questions), and the summative assessment (worth 50% of the grade in each unit of the literature log). The bridging essays from the literature logs’ summative assessments were analysed for this study.

Either the bridging essay or the post-reading activity are graded with a rubric and represent 30% of the grade for each literature log. For the other 20% of the grade of each unit in the literature log the teacher may choose where to put the weight. Some choose to give 20% on the inclusion of all seven pieces and for handing in the literature log on-time. Others give 10% on the basic understanding of questions and another 10% on the analysis and interpretation section. For the literature logs teachers are allowed to choose the literary pieces they want to teach, from a list of over 500 pre-approved English texts.

According to Davis and Ponnamperuma (2005:279), Koretz (1998:330), Pitts, Colin and Thomas (2001:350) and Barton and Collins (1997:7), portfolios have the potential to assess performance as well as the outcomes that are difficult to assess using traditional instruments. Some of the advantages for using portfolios, or learning logs are that portfolios illustrates longitudinal trends, highlight student strengths and abilities, allow for multiple components of the curriculum to be assessed, e.g. writing, critical thinking and technology skills and permit greater faculty control over the interpretation and use of results. In addition, portfolios foster opportunities for metacognition with reflective statements on the learning process written by the students (Davis & Ponnamperuma 2005:279).

As with all types of assessment the portfolio also has some potential disadvantages (Davis & Ponnamperuma 2005:283). Some of these disadvantages that have implications for the current study are that portfolios

are time consuming and challenging to evaluate, students may fail to remember to collect items. Management of the collection and evaluation process, including the establishment of reliable and valid grading criteria, is likely to be challenging. Security concerns may arise as to whether submitted samples are the students' own work or adhere to other measurement criteria and inter-rater reliability must be addressed.

To maintain inter-rater reliability in the grading of the literature logs, the Ministry of Education English Inspectorate has designed clear and concise grading rubrics for the bridging essay (appendix F), post-reading assignment and summative assessment answers for each unit in the log. The bridging essays, which are being analysed for this study, come from the final summative assessments, on three different units, given in class under teacher supervision; therefore they represent the students' individual work.

3.5.6.2 The Bagrut literature examination

The Literature Bagrut Examination has three sections. The first is the basic understanding or LOTS (lower order thinking questions). The second section is answering HOTS (analysis questions). In addition, on the analysis section is what is called an "extended HOTS" question in which the student must write what thinking skill they used to answer the question and explain "how" they used that skill to arrive at their answer. They may choose any of the thinking skills they studied over the course of the programme as long as their answer shows higher order thinking and an understanding of the definition of the HOTS they used. This involves the student showing that he/she can explain how they arrived at a particular answer to a question by employing the higher order thinking skill, and is an essential component of the programme. The literary texts do not appear before the student while taking the examination; therefore, they must review what they studied over the two or three years of the programme prior to taking the examination.

The third section of the five point examination is a bridging question in which the student must write a bridging essay of 80-100 words (students cannot lose

points for correct answers which are less than the suggested word amount) connecting the quotation or short passage given on the test with what the student learned in the literary piece.

The advantages of taking the external Bagrut Examination are: they are convenient for the teachers in that they are implemented and graded externally; they are scored objectively and thus provide for external validity and provide reference group measures. In addition, teachers and students do not have to save assignments completed over a two or three year period and there is no deliberation over whether to return work completed, as in the case of portfolios where there is a concern that the logs could be copied by other students in subsequent years.

For all of the reasons mentioned above, teachers are choosing either option depending upon the criteria set by each school. Those that are doing literature logs with their students find the advantages overwhelmingly more positive than the disadvantages (Kopinsky 2014). Especially, in that the literature log represents criterion-referenced data that is transparent for students, in terms of expected learning outcomes, in which they can trace their grades to the specifics of the performance task which are set.

Those who are choosing the examination are finding the logistical aspects of grading, saving, and security concerns with learning logs too much to bear. The issue of inter-rater reliability is also one that must be addressed seriously with the literature logs as the students' teachers grade the entire log; whereas, on the Bagrut examination there are two and sometimes three graders. In addition, students are allowed to re-take the examination to improve their scores; however, the grade on the literature log is their final grade on that section of the matriculation examination (Bagrut).

3.6 2012 EFL CURRICULUM

At the end of 2012 the Ministry of Education and Culture revised the 2001 EFL Curriculum to "expand the document, resulting in a curriculum that will better address the needs of teachers, material writers and test designers" (Culture Ministry of Education State of Israel 2012:5). The revised curriculum was based on the success of the 2008 Pilot programme (Steiner 2013:1).

3.6.1 Inclusion of HOTS in the 2012 curriculum

The expansion of the 2001 curriculum includes a number of updated components of which two are in the area of higher order thinking skills and literature at all levels (including three point matriculation students). The following two areas of the 2012 curriculum which have been added or enhanced from previous curricula are important for the current study:

- Higher-order thinking skills at all levels and all domains in order to encourage the enhancement of learners' comprehension, understanding and critical thinking.
- Key components for the teaching of literature (and access to information when appropriate), at all levels in order to provide a more unified and comprehensive framework.

The rationale for adding or enhancing these two areas of study in the EFL Curriculum is to stress the importance of developing higher order thinking skills in students in all domain areas and teaching key components of literature to all levels of EFL learners. In addition, word and grammar lists, which appeared in the English EFL Curricula of 1977 and 1988, but were removed from the 2001 EFL Curriculum, have now returned in section four of the curriculum under *Components of Language Teaching*.

Zohar (2004:38) over a ten year period led a number of studies on infusing higher order thinking into the science curriculum in Israel. One of her main

observations is that students need several opportunities to apply a new strategy before they actually are able to spontaneously connect the thinking skill to a new situation. This means that a new thinking strategy is most often not a “Eureka” type of process but rather a gradual and even unstable one. Several studies, (Paul 1992:14; Alwehaibi 2012:198; Lv & Chen 2010:139; Pogrow 2004:4; Ghabanchi & Moghaddam 2011:8; Mok 2010:283) concur with Zohar’s findings that the nature of teaching thinking skills, albeit worthwhile, is often elusive and requires reinforcement tasks across a broadly based curriculum.

Section three in the 2012 EFL Curriculum is devoted to integrating higher-order thinking skills with the teaching of literature. It adapts the strategies and benchmarks outlined in the 2008 initiative which incorporates the seven key elements: Pre-Reading; Basic Understanding (LOTS); Analysis and Interpretation (HOTS); Bridging Text and Context; Post-Reading; Reflection and Summative Assessment.

There are four principles which underlie the learning of higher order thinking in the current EFL curriculum. Firstly, that learners at all levels are exposed to the higher order thinking skills, secondly, that learners are provided with the appropriate vocabulary to enable them to use and apply the higher order thinking skills, thirdly, that learners at both the intermediate and proficiency levels are provided with explicit instruction of higher order thinking, and fourthly that learners at the intermediate and proficiency levels are provided with opportunities to apply the HOTS in all four domains (Culture Ministry of Education State of Israel 2012:13).

The last principle establishes a precedent to expand the infusion of higher order thinking beyond the study of English literature into the other three domains of the EFL curriculum. In other words, the domain of appreciation of literature, culture and language provides for an introduction to the integration of higher order thinking skills as outlined in the 2008 initiative. However, the new curriculum requires an expansion of those skills by expecting teachers and students to infuse higher order thinking into the remaining three EFL

domains; the domain of social interaction, the domain of access to information and the domain of presentation. As such the current curriculum recognises that for students to master higher order thinking skills they must have several opportunities to practice and apply them.

3.6.2 Literature, higher order thinking and writing

The proficiency level (four and five point high school EFL students) for the domain of appreciation of literature and culture, lists a number of benchmarks that students are expected to meet by the end of their twelfth year. These include (Culture Ministry of Education State of Israel 2012:49):

- identifying and describing events, setting and main characters in literary texts, using lower-order thinking skills
- analysing and interpreting literary texts, using higher-order thinking skills
- recognising and explaining the use of appropriate literary techniques in a text, such as imagery, irony, metaphor
- understanding the historical, social and/or cultural contexts of the text and its author and explaining how these are reflected in the text or how they have influenced the writing of the text
- providing an oral, written or visual response to a literary text
- reflecting on the literary text and the process of integrating the higher-order thinking skills
- being aware of the relationship between cultural practices, literature, and a variety of cultural products

This latest EFL curriculum focuses on integrating the HOTS, mentioned and outlined in the beginning of the document. It includes the importance of understanding literary terminology as well as the ability to “bridge” the literary text to a new context through the introduction of new information in the bridging question. The expectation is that students will practice metacognition by reflecting both on the literary text and how they learn it, as well as the

process of integrating HOTS and how those enhance their understanding of the literary texts.

The writing component is mentioned here as one form of responding to the literature piece. It is mentioned along with oral or visual responses to the literary text. However, in the benchmarks for the domain of presentation, at the proficiency level, students are expected to synthesise and present information in depth from multiple sources, react in depth to the content of something read, seen, or heard using the appropriate higher order thinking skill, present an argument for or against a particular point of view, design different means for collecting information, report on the results and conclusions using appropriate higher order thinking skills and use digital media tools (Culture Ministry of Education State of Israel 2012:24). Therefore, like higher order thinking, written formats are now integrated into all domains of the EFL curriculum, at all levels, as many skills need to be assessed through writing activities.

The motivation for this study is to examine one aspect of students' work in the EFL literature programme, namely the bridging essay. The bridging task requires students to comprehend a new piece of information and in a written format, make a connection (one of the HOTS taught) between the new information and the literary texts studied in the programme, as well as provide an example from the literary text that supports the connection made (section 3.5.6). The question is, after two years in this programme, is the student able to complete all of the above tasks in a written format? That is to say, after two years learning the literary texts in the classroom, along with the HOTS, will the students have developed the ability to make a connection between new information and the literature texts which they studied and will they be able to exhibit that understanding in a succinct (1-3 paragraphs) piece of writing?

3.7 TEACHERS' PROFESSIONAL DEVELOPMENT IN HIGHER ORDER THINKING SKILLS

It has already been mentioned that as with any new curriculum initiative, which promotes changing teachers' methodologies in the classroom, scholars (Zohar 2004:293; Holt-Reynolds 2000:21; Nesbitt & Cliff 2008:283; Ketabi, Zabihi & Ghadiri 2012:2; Mok 2010:283) agree that much work must be done to engender that change by offering on-going education for the teachers, which includes feedback from the teachers on what is efficacious in the classroom.

Professional teachers' programmes, to facilitate the infusion of higher order thinking into the classroom are in place to help teachers prepare their students for the rigors of higher order thinking. According to several scholars (Zohar 2004: XV; Lombard & Grosser 2004:213; Zoller, Barak & Ben-Chaim 2007:353; De Corte & Masui 2009:181; Ali 2010:45), understanding students' learning and teachers' professional development lies at the centre of our ability to implement a thinking curriculum in our schools. The success or failure of these programmes depend upon two conditions, firstly teachers' understanding of what is meant by higher order thinking and secondly teachers being able to develop strategies to facilitate that type of learning in the classroom.

The two programmes discussed here are examples which exemplify the dual aspect of adding the teaching of higher order thinking into the curriculum. The first is a study on the development of teachers' metacognitive declarative knowledge in teaching HOTS in a science classroom. It focuses on the importance of teaching educators what it means to think critically and how to develop strategies for engaging their students in higher order thinking.

The second is the teacher training programme for integrating HOTS in the new literature programme. This includes a course EFL high school teachers are obligated to take, visits from trained literature counsellors who come to schools and keep in regular contact with the English teachers who teach the

literature programme and access to a website, *thinking through literature and culture* or TLC (Cohen & Raemer 2011).The TLC website is designed to provide teachers with lesson plans, additional training webinars and access to members of the Ministry of Education English Inspectorate in order to ask questions and clarify updates to the curriculum.

3.7.1 Development of teachers' metacognitive declarative knowledge in the context of teaching HOTS in science

In 2004 Zohar published a book entitled *Higher Order Thinking in Science Classrooms: Students' Learning and Teachers' Professional Development*. In it she discusses the research results of a programme, "Thinking in Science Classrooms" (TSC), mentioned in section 3.5.3, that she and her researchers conducted since the inception of the TSC programme in the early 1990's. One of the goals of Zohar's study was to research the connection between teachers' thinking and the study of learning and instruction of higher order thinking (Zohar 2004:95).

Zohar (2004: 98), Jungwirth (1987:50 1990), Brownell, Jadallah and Brownell (1993:440) and Bransky, Hadass and Lubezky (1992:90) have done studies which show that a very low percentage of teachers tested are able to teach higher order thinking skills to their students, even though intuitively they might believe that it is an important skill to impart. In a study conducted by Nesbitt and Cliff (2008:283), they discovered that teachers failed to create appropriate learning objectives and therefore their questions were not effective in creating higher order types of questioning that would lead to higher order thinking learning outcomes.

Nesbitt and Cliff (2008:284) propose that crucial to what Zohar (2004:293) refers to as "pedagogical knowledge in the context of teaching HOTS", is the teacher's skill at asking questions. Teachers are naturally successful in writing closed-ended questions but struggles with open-ended questions. One may conclude, based upon Nesbitt and Cliff's and Zohar's arguments that the

process of creating open-ended content questions is difficult and foreign to the teachers. There is a need for a more deliberate effort to be made in helping teachers to craft open-ended questions, which lead to higher order thinking in their classrooms, and training educators to understand how to teach higher order thinking as either a separate topic or infused into specific content areas of a curriculum.

Zohar's (2004:100) group of researchers specify goals that will enable teachers to understand and adapt the methodologies to enhance what Willingham (2007:11) calls "deep structure" understanding, as opposed to "surface structure" understanding or what Perkins (1992:21-27) refers to as "non-fragile knowledge", as opposed to "fragile, inert, naïve and ritual knowledge".

The goals of the TSC project complement what Harpaz (2012:12) refers to as the understanding approach to higher order thinking, which rejects the dichotomy between teaching knowledge and teaching thinking, or between teaching what to think and how to think. It states that there is an internal connection between knowledge and thinking, between the "what" and the "how".

The conclusions reached by Weinberger and Zohar (2004:117) are that continuous support from a university team, during implementation of the method, is vital to the success of the programme. Teachers will not adapt new pedagogic methods without support and consistent training and feedback. The reason is because it creates a sense of cognitive imbalance, confusion and concern that they are not covering the material students will need to pass the examinations. With consistent support and training, those fears can be assuaged and teachers' positive attitudes restored, so that the goal of creating "thinking classrooms" can become a reality.

The study on teachers' metacognitive declarative knowledge has important implications for this research, as the goals of infusing higher order thinking into a literature based EFL curriculum are highly dependent upon the quality

of courses, in-service training and on-going support available to teachers, who are expected to infuse higher order thinking into their EFL literature programme.

3.7.2 Teacher training for integrating HOTS into the literature programme

The 2008 pilot programme for integrating HOTS into the EFL curriculum ended with the implementation of the programme into all five point level EFL classes in Israel in 2010. The programme recognised the importance of teacher training, mentoring as well as creating comprehensive written guidelines for the skills teachers were expected to acquire and to impart to their students. In addition, teachers who participated in the programme received mentoring and in-service courses before, during and after the programme (Orland-Barak & Hasin 2009:431).

After the first group of teachers completed the two year pilot programme, they became available as mentors for the rest of the EFL educators around the country. High school EFL teachers are obligated to sign-up for either on-line or face-to-face courses, in which the English Inspectorate and the National counsellors, for the literature bagrut programme, provide training and mentoring. These courses reach out to the EFL teachers in the eight districts around Israel (Cohen & Raemer 2011).

3.7.3 Literature counsellors

As part of the on-going mentoring programme, the English Inspectorate has three National literature counsellors and another eight local literature counsellors, from each of the eight districts in Israel, to mentor teachers and provide updated information to all of the high schools. These counsellors are tasked with visiting schools in their district, meeting with the English staff and the principals and clarifying the literature programme for them, as well as

answering questions and providing support to the EFL teachers (Reamar: *http://tlc.cet.ac.il/*).

The tools at their disposal are, The Teachers' Handbook for Integrating Higher Order Thinking Skills with the Teaching of Literature, updated information provided on the English Inspectorate's site and the Thinking through Literature and Culture (TLC) website developed by the English Inspectorate's Office, and Ministry approved text books and courseware for implementing the literature programme (Shapiro 2009).

3.7.4 Thinking through literature and culture website

One of the most innovative initiatives of the Literature Bagrut Programme is the creation of the user-friendly TLC website which teachers may access to aid them in understanding and implementing the literature programme. The site which is available at *http://tlc.cet.ac.il/* is designed as a resource centre for English teachers to learn about the implementation and the assessment of the literature programme.

The TLC website supports the in-service training programme for teachers and helps those who have not yet taken the course so that they may begin to implement the programme in their classes. For all EFL teachers it provides up-dated information, ideas on teaching the materials and peer sharing. In addition, teachers may submit questions to the English Inspectorate or to the literature counsellors who manage the website (Cohen & Raemer 2011).
Costa and Kallick (2007:273) agree that teachers will not "create a culture of mindfulness" if they are not in an intellectually stimulating, creative, and cooperative environment, themselves. Thus, the ability to create "thinking classrooms", or "thought-full" environments infused with "synergistic thinking" heavily depends on the support that the educator receives as they strive to create an environment that is not only focused on students acquiring information, but also on knowing how to apply it and act on it in a variety of situations.

3.8 SUMMARY

The three outstanding influences on the evolution of the EFL Curriculum in Israel from the 1970's to 2012 are the shift from behaviourism to constructivism, English language becoming the *lingua franca* in the world and the communicative language teaching movement. These provided the impetus for creating dynamic curriculum initiatives throughout Israel over the past 40 years. Due to research projects such as the Harary report in 1992, Reuven Feuerstein's theory of structural cognitive modifiability and Branco Weiss Institute's creation of the *Community of Thinking Model*, there has been a concerted effort by politicians, educators and parents to infuse HOTS in the Israeli school curriculum.

The influence of the move from behaviourism to constructivism presents itself as the driving force for each EFL Curriculum initiative that moves from a more teacher-centred environment to a more student-centred one, while creating both standards for teaching and encouraging alternative assessments. In addition, the emphasis on "communication" in the English language is the criterion which is used to justify the materials used, in the EFL classroom, over the years since the advent of CLT in the 1970s.

Starting with the EFL Curriculum of 1977 until the current 2012, EFL Curriculum, there has been a movement towards learner autonomy, cooperative learning and a focus on meaning, diversity, thinking skills and alternative assessments. In the 1988 EFL Curriculum; the main objective focuses on communication as meaning making and the fostering of general intellectual awareness. This not only included linguistic proficiency, but also to acquire skills of logical analysis and analogy, more diverse ways of thinking, and a cognitive flexibility which would enrich pupils intellectually and culturally. This is an example of encouraging thinking skills and respecting the cultural diversity of different people who speak different languages.

By 2001 the EFL Curriculum adopted a set of standards and domains which further demarcate a commitment to implement social interaction and access to information, presentation and appreciation of literature, culture and language. English as a foreign language becomes the vehicle for moving towards learner autonomy as well as cooperative learning. This also begins the process of making changes in assessment procedures in the EFL Curriculum by encouraging teachers to utilise alternative assessments such as the literature logs.

The 2008 pilot programme, for formally introducing higher order thinking into the EFL classroom, which led to the 2012 Curriculum for EFL in Israel, is justified based upon a compilation of many studies conducted over the past several years, both in and outside of Israel which established the importance of teaching, learning, applying and assessing higher order thinking skills in the classroom.

The 2012 EFL Curriculum attempts to embody the goals of meaning, diversity, thinking skills, alternative assessment and teachers becoming co-learners with their students. These goals are fostered through speaking, writing and reading (which includes literary texts) and technology. The hope is that together educators and students will be able to create a successful, dynamic, vibrant, and progressive learning environment for the EFL student of the 21st Century.

As with any new curriculum initiative, which promotes changing teachers' methodologies in the classroom much work must be done to engender that change by offering on-going education for the teachers, which includes feedback from the teachers on what is efficacious in the classroom. In other words, studies must be conducted which measure whether or not these new programs are effective in the classroom.

This study hopes to contribute to that body of research by investigating initial outcomes in students' HOTS writing skills since the 2008 initiative in EFL classes in Israel began. This literature programme in the EFL Curriculum

purports to achieve two lofty goals re-introducing literature as a subject that is assessed as part of the matriculation certificate and infusing HOTS, which students must show an understanding of, in answering written analysis questions and in the writing format of the bridging essay.

The following chapter discusses the research paradigm, methodology and design employed to carry out this study.

CHAPTER 4
RESEARCH DESIGN AND METHODS

4.1 INTRODUCTION

Research should aim to deal with a significant real-world topic and be designed to contribute to a specific scholarly literature (King *et al* 1996:4). The data gathered for this study intended to provide essential information on the initial outcomes of an EFL curricular initiative to teach English literature infused with HOTS (section 1.7) in a high school setting in Israel and contribute to scholarly literature in the area of infusing HOTS in EFL literature courses. The main research question which guided the study was formulated as follows: What are the pertinent challenges and key guidelines in introducing and assessing higher order thinking skills in a literature based English foreign language curriculum?

The previous chapter provided a background for higher order thinking curricular initiatives in Israel. Special attention was focused on Pedagogical Horizons (section 3.5.5) and the pilot programme for integrating HOTS into an EFL literature programme (section 3.5.6). This chapter discusses the rationale for the empirical research, the research paradigm and research approach as well as the research questions. An explanation of how participants were selected, the data collected, analysed and interpreted as well as the quality measures taken during the study and the ethical considerations adhered to during the research is also provided.

4.2 RATIONALE FOR EMPIRICAL RESEARCH

Johnson, Onwuegbuzie and Turner (2007:123) recommends that educational research should have a general broad set of values which include honest openness to critique and ethical behaviour that are held in common among all educational researchers. Furthermore, research should contribute, even if it is indirectly, to social betterment, social justice and the advancement of knowledge. To achieve these goals an educational research project must rely

on multiple sources of evidence, identify important problems, pose questions that can be investigated empirically, link explanatory research to relevant theory, fully disclose the research process and findings and encourage scrutiny and critique in order to continue to improve the scientific education enterprise (Johnson, Onwuegbuzie &Turner 2007:120).

Johnson's views were taken into consideration when conducting this research as it was envisaged that the findings could contribute to a better understanding of the infusion of HOTS into an EFL literature curriculum and to the improvement of such a curricular initiative. To achieve these goals multiple sources of evidence were consulted, a number of questions were posed and investigated empirically.

If the objective of research is to provide evidence or ideas about phenomena (Johnson & Christensen 2004:22), then it must adhere to a set of rules or as Marczyk, DeMatteo and Festinger (2005:6-7) state it must have guiding principles of scientific evidence-based inquiry. These include the following six essential principles that a researcher must follow: firstly, pose significant questions that can be investigated empirically; secondly, link the research to a relevant theory or conceptual framework; thirdly, use methods that allow direct investigation of the research question; fourthly, provide a coherent and explicit chain of reasoning; fifthly, be able to replicate or generalise the findings by extending them across studies and lastly, disclose research to encourage professional scrutiny and critique.

The above principles were adhered to in this study as; firstly, questions were posed that allowed the researcher to investigate empirically (section 1.6) and secondly, the broad relevant theoretical framework which underpinned this study is constructivism (section 2.1) which among other things postulates that learners actively construct their knowledge in interaction with their environment and the teacher becomes the facilitator in that learning environment. Thirdly, the selection of a group of 50 high school students from two different schools to participate in this study (sections 1.9.1 & 4.6) and collecting 150 bridging essays and 50 opinionnaires, allowed for direct

investigation of the research questions. Fourthly, the collection and analysis of both the quantitative and qualitative data allowed for an explicit chain of reasoning. This enabled an analysis of the causal relationship between the independent and dependent variables. The fifth principle, being able to replicate the findings will be possible if the conditions in other high schools are the same as in the two schools in which this study was conducting. Lastly, the findings of this study will be disclosed once this study is published and other educators and researchers have the opportunity to scrutinise the results.

In 2012 the Ministry of Education English Inspectorate in Israel implemented a new English literature curriculum infused with HOTS that is content based with a strong metacognitive characteristic (sections 1.5; 3.6). The goals of this curriculum are to enable students to define a list of HOTS and to apply them in their analysis of literary texts and in their writing. The rationale for this empirical study (section 1.6) was therefore to determine if HOTS are innate skills or must they be purposefully taught in order for students to learn and to apply them, to what extent students, after two years of learning literature with HOTS, could apply one of the HOTS, “making connections” to their bridging essays, how accurately could students demonstrate an understanding of HOTS by naming them and providing an example of how they could apply them in the areas of reading and writing, what were students’ opinions of the challenges of learning HOTS in an EFL literature curriculum and what guidelines could be provided for pursuing further studies into the efficacy of an EFL literature programme which infuses HOTS.

This research comes under the purview of evaluation research. Johnson and Christensen (2004:9-10) in their discussion of the general types of research conducted by educational researchers state that evaluation research focuses on determining the merit, worth and/or quality of an educational intervention on the participants. This is particularly useful in determining whether or not a new curriculum initiative is effective in the classroom and to show how it could be improved.

In addition to being an evaluation research, the information gathered and analysed makes this an effectiveness study. An effectiveness study determines the ability of an intervention to produce the desired beneficial effect in actual use under routine conditions where mediating and moderating factors can be identified (Raudenbush, Rowan & Cheong 1993:540). This is necessary in order to provide valuable information pertaining to the quality of the curricular products (Van den Akker, Nieveen, Gravemeijer & McKenney 2006:74).

As an evaluation research and an effectiveness study this research endeavoured to determine the cause-effect relationship between what the curriculum and educators intended to teach and the outcomes or results of those efforts in terms of the sub-questions mentioned above.

4.3 RESEARCH DESIGN

According to McMillan and Schumacher (2010:490) a research design is the "plan that describes the conditions and procedures for collecting and analysing data", while Creswell (2014:12), refers to the direction that a research design gives to the procedures to be followed in a research project. A research design includes specific details of how the research will be conducted. It includes how data will be collected, what instruments will be used and what means will be used to analyse the data that was collected.

4.3.1 Research paradigm

The research design for this study is within the paradigm of interpretive/constructivism which uses systematic procedures but emphasises multiple socially constructed realities (McMillan & Schumacher 2010:6). This paradigm is based on the belief that reality is constructed by individuals and societies based on their experiences and interactions with one another and their interpretations of the world in which they live (Jonassen, Cernusca & Ionas 2007:130).

The interpretive/constructivist paradigm focuses on the world view of participants, while simultaneously accommodating that of the researcher. It maintains that there are a plethora of constructed realities and that the way to approach the study of those realities is to use common sense, practical thinking and sound judgments (Marczyk *et al* 2005:6). Knowledge is viewed as being both constructed and based on the reality of the world we experience and live in.

Furthermore, the interpretive/constructivist paradigm is a model or system which embraces the belief that the mind constructs its own conceptual map for interpreting and interacting with the world around it. Accordingly, knowledge, perceptions, imaginations and mental constructions all form a part of the human experience, rather than being independent from the person (Jonassen 1998:225). Within the interpretive/constructivist paradigm, researchers allow for their judgments and perspectives to play a role in the interpretation of the data, thereby putting more emphasis on values and context and less on numbers (McMillan & Schumacher 2010:6).

Like all other research paradigms, the interpretive/constructivist shares a common principle of searching for knowledge by systematically gathering empirical information. This is referred to as evidence-based inquiry. In evidence-based inquiry, the researcher provides coherent questions which can be empirically investigated and linked to relevant scientific theories or conceptual frameworks, and then understood or explained within a logical chain of reasoning (McMillan & Schumacher 2010:6-7).

This paradigm recognises the importance of eclecticism and pluralism in which conflicting theories and perspectives can also be useful to gain an understanding of people and the world. In other words, the concept of knowledge is viewed as being both based upon the reality of the world one experiences and lives in and constructed from individuals' different views and philosophies (Johnson & Onwuegbuzie 2004:18).

In this study the interpretive/constructivist paradigm was followed to explore and describe learners' experiences and challenges with regard to the implementation of the literature programme which infuses HOTS. This included the assessment of their abilities to implement the HOTS of "making connections" when writing bridging essays. The interpretive/constructivist paradigm assisted the researcher in understanding learners' challenges and achievements throughout the curricular initiative.

As this study supported the view and values of the interpretive/constructivist paradigm, the opinionnaires relied upon the participants' view of the English literature programme as a way to understand the outcomes of the English literature programme which infuses HOTS. The open-ended questions in the opinionnaire facilitated the opportunity for the participants to construct the "meaning of the situation" (Creswell 2014:8) to express what they had learned as well as their opinion of the English literature programme.

In addition, the analysis of the bridging essays provided another opportunity to focus on participants' interpretation of a literary text and an unfamiliar text and to "make a connection" between the two. The participants had to apply the HOTS of "making connections" as they organised the content of their bridging essays. Every bridging essay had a different answer as participants' interpretation of the two texts flowed from their knowledge and their personal and cultural experiences.

4.3.2 Research approach

The research approach of this study involved a mixed-method approach using both quantitative and qualitative methods; namely the quasi-experimental design of Interrupted Time Series for the quantitative aspect of the study and an open-ended question opinionnaire and essay analysis for the qualitative aspect. Together they enabled a triangulated study. A triangulated study is one in which the qualitative and quantitative components are concomitant with the purpose of examining the same phenomenon by interpreting them both

together (Creswell &Tashakkori 2007:210; Draugalis, Coons & Plaza 2008:11).

The choice to use a mixture of qualitative and quantitative approaches motivated this study in that it allowed the researcher to compare data from both quantitative and qualitative evidence. The goal was to be able to achieve greater diversity in data collection and analysis, increased confidence in the results and validity of the analysis of the results and more insightful understanding of the influence of this curricular initiative on participants' learning.

The choice to use a mixture of qualitative and quantitative methods is a reflection of an epistemological and philosophical stance, which supports the interpretive/constructivist paradigm (Sharp, Mobley, Hammond, Withington, Drew, Stringfield & Stipanovic 2012:36). Mixed methods research is seen as an appropriate way to judge ideas on the grounds of empirical and practical consequences (Johnson & Onwuegbuzie 2004:17). It provides additional insights into the causal relationship between the intervention and the outcomes based on the respondents' written bridging essays and opinions of the literature programme. The following sub-sections discuss the quantitative, qualitative and mixed approach, respectively.

4.3.2.1 Quantitative research approach

Quantitative research is an approach that tests objective theories by examining the relationship between variables (Check & Schutt 2012:11). The variables can be measured on instruments and then the data is numbered and can be analysed statistically. Quantitative methods are most often used when the motive for doing the research are evaluation, exploration or description (Check & Schutt 2012:11; Johnson & Christensen 2004:31).

The rationale for the quantitative approach is that it measures cause and effect relationships between independent and dependent variables. The quantitative approach attempts to study behaviour under controlled conditions

and collect data based on precise measurement using validated collection instruments to answer research questions or test hypotheses (Creswell 2006:6).

Although quantitative studies do not necessarily fall within the purview of the interpretive/constructivist paradigm, they are not excluded. As discussed by Mackenzie and Knipe (2006:193), “the constructivist researcher is most likely to rely on qualitative data collection methods and analysis or a combination of both (mixed methods); however, quantitative data may be utilised in a way, which supports or expands upon qualitative data and effectively deepens the description”. The mixed-method approach for this study supports the interpretive/constructivist paradigm in that it is an evidence-based inquiry which involves systematically gathering the data, analysing it and linking it to the results of a specific intervention, an EFL literature programme which infuses HOTS (section1.8.3).

The quasi-experimental design of interrupted time series was the design used for the quantitative aspect of the study. This is similar to a one group pre-test-post-test design except it is extended by the use of a number of tests (in this study three bridging essays) during a defined research period (Marczyk *et al* 2005:139). Observing the fluctuation scores on the bridging essays (dependent variable) over time, allowed the researcher to more accurately interpret the impact of the independent variable (the literature programme which incorporated HOTS in the literature lessons).

This coincides with the interpretivist/constructivist paradigm as the respondents constructed their own meaning from the literary text and the unfamiliar information presented using the HOTS of “making connections” that they were taught. By analysing the bridging essays over a two year period the researcher was able to measure the progress of participants’ writing ability using HOTS and their understanding of the literary texts studied.

The value of using an interrupted time-series design in a study, which assesses the effect of curricular materials, is that it measures the causal

relationship between the independent and dependent variables reliably on repeated occasions (Biglan & Wagenaar 2000:31).

The first quantitative measurement was of the scores on the rubric for the first set of bridging essays participants wrote at the beginning of the first year of the programme. The two other repeated measurements in the time-series consisted of two additional bridging essay scores, one at the beginning of the second year of the study and the third at the end of the second year, the last bridging essay participants wrote. The collection of three bridging essays at three different periods of the programme was helpful in ruling out potentially confounding variables (Johnson & Christensen 2006:307).

4.3.2.2 Qualitative research approach

According to Srivastava and Hopwood (2009:77) a qualitative research approach is driven by what the inquirer wants to know and how the data are interpreted. It is led by an inductive approach which searches for patterns, themes and views which present multiple perspectives on a particular intervention. It examines the depth of a phenomenon (Johnson & Christensen 2004:169). The qualitative approach focuses on three main questions, firstly, what are the data telling me? Secondly, what do I want to know? Thirdly, what is the dialectical relationship between what the data are telling me and what I want to know? (Srivastava & Hopwood 2009:79). Johnson and Onwuegbuzie (2004:21) argue that qualitative data collected can be analysed both qualitatively and quantitatively. The process of quantifying the qualitative answers is enumerations or describing how often certain words or ideas appear in the answers to the questions.

The qualitative approach in this study involved giving the participants an opinionnaire (appendix H) that comprised of five open-ended questions on the literature programme (section 5.3.2). The frequency of words and ideas in the opinionnaires were checked to ensure that they appeared on a number of students' answers and weren't just being repeated by a few students. Furthermore, critical and interpretative analysis of 18 purposefully selected

essays written over a period of time helped to determine whether or not the participants were able to apply the HOTS in their writing (section 5.3.1).

An inductive approach was used by the researcher to extrapolate themes and views that were presented in the answers to the opinionnaire questions. In reading the answers to the questions words were segmented into meaningful units and patterns in respondents' answers were noted (section 4.7.3.2).

4.3.2.3 Mixed method approach

Mixed methods research involves the use of multiple approaches that encompass both quantitative and qualitative research (Creswell 2006:10). It combines both inductive and deductive thinking and gives the researcher the freedom to use all methods possible to examine the research question.

King *et al* (1996:4) postulate that qualitative and quantitative research approaches are only styles and methodologically and substantively of less importance. What is essential in all good research is that it derives from the same underlying logic of inference. Thus, King, *et al* (1996:5) state that the best research often combines features of both quantitative and qualitative methods.

In their discussion of mixed-methods research, Teddlie and Tashakkori (2009:8) explain this approach as the integration of the statistical and thematic data and having an understanding of both quantitative and qualitative methods which allows investigators to "go back and forth seamlessly between statistical and thematic analysis" (Greene, Caracelli & Graham 2010:8-10). Mixed methods approach therefore allows the researcher to utilise whatever tools are required to answer the research questions they are studying. The mixed-method approach was chosen for this study to allow the researcher an opportunity to do both statistical analysis and examine patterns, categories and themes that emerged from the data.

Creswell and Tashakkori (2007:4), Draugalis, Coons & Plaza (2008:7) delineate four different types of mixed methods research. The different types are summarised in Table 4.1.

Table 4.1: Four Common Types of Design for Mixed Methods

Type	Sequential Explanatory	Sequential Exploratory	Triangulation	Embedded
Definition	The quantitative component is followed by the qualitative	The qualitative component is followed by the quantitative	The qualitative and quantitative components are concomitant	The qualitative and quantitative are concomitant but the purpose is different than triangulation
Purpose	Explain quantitative results using qualitative findings	To explore, develop and test an instrument or a conceptual framework	To examine the same phenomenon by interpreting qualitative and quantitative results together	To support a qualitative study with a quantitative sub-study or vice-versa to better understand a specific issue

In analysing the above designs of the mixed methods approach one becomes aware of the multifaceted nature of this approach. The four types of designs for mixed methods differ from each other in that in each of these subsets a greater or lesser weight is given to the quantitative research and the

subsequent analysis of the qualitative aspect of the research and analysis, or vice versa.

A subset of the mixed methods approach is triangulation (Johnson & Christensen 2004:424). The term triangulation is often described as the designed use of multiple methods, with offsetting or counteracting biases, in research of the same phenomenon. Greene, *et al* (1989:256) along with Denzin (1978:291) first outlined how to triangulate methods, which they state are used to strengthen the validity of inquiry results.

In other words, triangulation combines different methodologies to study the same phenomenon which offsets biases and limitations that the use of one method potentially will yield. According to Creswell (2014:7) triangulation occurs by firstly, embedding one dataset within the other so that one provides a supportive role for the other, secondly, merging the two datasets by bringing them together and thirdly, by connecting the two datasets, having one build on the other.

Three outcomes can emerge from triangulation, namely; contradiction, convergence and inconsistency. The prevailing outcome allows the researcher to construct a logical explanation for the observed phenomena. Johnson, Onwuegbuzie and Turner (2007:115) argue that triangulation allows researchers to be more confident in their outcomes which can lead to richer data. Johnson *et al* (2007:116) further acknowledge that even if there is limited interaction between the two sources of data, when they are collected, the findings could still complement each other at the data interpretation stage.
The mixed method design for this study, in terms of the above-mentioned typologies (table 4.1) fits into the third category namely triangulation in which the qualitative and quantitative components were concomitant, meaning that the qualitative and quantitative data were examined concurrently. In other words, the purpose was to examine the same phenomenon by interpreting qualitative and quantitative results together.

In this study the data collected from the quantitative scores on the bridging essays were used to determine if participants showed improvement in writing a bridging essay using the HOTS of “making connections” in the two years that they were exposed to the literature programme. The scores of three markers on three sets of essays from 50 participants were statistically analysed for the quantitative part of the study. Once that was determined, 18 purposefully selected essays were qualitatively analysed to critically examine the content of bridging essays which revealed the most, the least and average improvement in writing with HOTS during the two years. The qualitative analysis of the bridging essays was examined concurrently with the quantitative analysis of the bridging essays thus allowing for two sources of data that enabled the researcher to be more confident in understanding the outcome of the curricular initiative on participants’ writing.

Furthermore, some of the themes which emerged in the qualitative analysis of the answers to the questions on the opinionnaires were compared to the lowest scores on the third set of bridging essays. This was done to determine if participants learned a HOTS well enough to describe it and explain how they could apply it, specifically to their reading and writing, even though their essay scores showed little improvement. This triangulation of the research produced a rich body of data which enabled the researcher to more thoroughly understand to what extent participants had learned HOTS while they were completing the literature programme.

The reasons for choosing a mixed method approach for this study was first and foremost the commitment to providing a greater understanding and confidence in the research findings. The sequence of this study included the collecting of 150 bridging essays from 50 participants and one opinionnaire from each of the 50 participants. The bridging essays were both quantitatively and qualitatively analysed and the opinionnaires were qualitatively analysed by segmenting and creating a master code sheet. The following discusses the research questions and selection of participants.

4.4 RESEARCH QUESTIONS

The primary research question for this study was to determine the pertinent challenges and key guidelines in introducing and assessing students' HOTS in a literature based English foreign language curriculum. Five other sub questions further assisted in addressing the main question. Those sub-questions, the method of data collection and sources for collecting data appear in Table 4.2 below.

Table 4.2: Research sub-questions, methods of data collection and sources for collecting data

Research sub-questions	Method of data collection	Source for collecting data
Sub-research question 1 Are HOTS innate skills or must they be purposefully taught in order for students to learn and to apply them?	Literature review (Chapter 2)	Books, journal articles, manuals, policy documents
Sub-research question 2 To what extent has 10th and 11th grade EFL Israeli students' ability to apply HOTS to their bridging essays, after completing two years in the English literature programme, been improved?	Collection of bridging essays and opinionnaires	Quantitative and qualitative analysis of 50 students' bridging essays Qualitative analysis of answers to questions on 50 student opinionnaires
Sub-research question 3 How accurately could students demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply them	opinionnaires	50 students' answers to opinionnaire questions

in the areas of reading and writing when answering the opinionnaire questions?		
Sub-research question 4 What were students' opinions of the challenges of learning literature infused with HOTS in an EFL literature curriculum?	opinionnaires	50 students' answers to opinionnaire questions
Sub-research question 5 What guidelines could be provided for pursuing further studies into the efficacy of the EFL literature programme which infuses HOTS?	Literature review chapter 2, opinionnaires, bridging essays	Books, journal articles, manuals, policy documents 50 students' answers to opinionnaire questions Scores on 150 bridging essays

4.5 SAMPLING AND SELECTION OF PARTICIPANTS

Two schools were selected as "a sample of convenience" (Marczyk *et al* 2005:155) as these schools are close to the researcher's home and the researcher was able to receive permission from the principals and the students to photocopy bridging essays and administer an opinionnaire. A "sample of convenience" in this context means that the schools were easily accessible for the study.

The selection of the participants was based upon the first group of high school students in Israel who were required to complete the literature programme in order to receive their Bagrut certification. Twenty five participants came from each of the two schools. The students selected were all in the five point English classes which represent the highest level taught in the Israeli school

system. The same students were used for both the quantitative and the qualitative part of this study.

The sample of participants was a purposive sampling because the participants selected represented two complete classes of students in each school who were in the 10th grade 5 point EFL class the first year and the 11th grade 5 point EFL class the second year of the study (section 1.9.1). Because the literature programme was being implemented in all of the EFL (five point Bagrut) classrooms in Israel, random assignment of participants to experimental control groups was not possible.

Schneider, Schmidt & Shavelson (2007:17) and Axinn and Pearce (2006:15), state that when it is impossible to have a "control group" for a study this is known as "causal relativity". Chatterji (2009:103) explains that "causal relativity" is a feature of a situation in which field conditions may not allow the researcher to manipulate the educational treatment and therefore the causal relationship between the independent variable on the dependent variable is not absolute, but remains more relative. Thus, all the more care must be taken in the data analysis to "isolate" the influence of the independent variable. This is further discussed in section 4.9 which deals with quality measures.

4.6 DATA COLLECTION METHODS AND PROCESS

A triangulated study was undertaken that involved reading and marking participants' bridging essays, qualitatively analysing a purposefully selected sampling of those bridging essays (the sampling process was based upon most, average and least improvement on bridging essays over the two years), measuring progress in using HOTS both quantitatively and qualitatively and constructing and analysing answers on an opinionnaire in which participants had another opportunity to exhibit what HOTS they had learned and what they thought about their process of learning. The data that was collected was constructed from quantifiable evidence, qualitative analysis of participants'

writing on bridging essays and through qualitative analyses on the answers to open-ended questions on an opinionnaire.

Triangulated mixed method data collection strategies were used to validate one form of data with the other form (table 4.1), to transform the data for comparison and to address different types of questions (Creswell & Plano Clark 2007:118). Triangulated data collection occurred firstly, with the quantitative and qualitative analysis of the bridging essays, (the critical and interpretative analysis of the essays was discussed in conjunction with the combined mean scores given by the markers) and secondly, at the end of the study when the 10 lowest final mean scores on the third set of essays were compared with the answers on the opinionnaires to determine if participants, who did not improve in their writing using HOTS, had nevertheless learned to explain a HOTS and how it could be applied to reading and writing. In many cases, including this study, the same individuals provided both qualitative and quantitative data which enabled the data to be more easily compared and to allow for triangulation (Muskat, Blackman & Muskat 2012:9).

4.6.1 Bridging essays quantitative and qualitative methods

A total of 150 graded bridging essays (see 1.9) written over a period of two years each marked by three markers according to the categories on a rubric (appendix E) were collected. In addition, 18 bridging essays underwent a qualitative critical analysis. The bridging essay was chosen for this study because it represents the one essay that asks the students to use one of the HOTS of “making connections” in their writing. This involves finding connections between an unfamiliar piece of information presented to students (a text or quotation which reflects actual events in the author’s life, or historical/cultural information in the context in which the story/poem/play or novel takes place) and having the participants explain, in their bridging essay, how that new information connects to the literary text studied in class. The bridging essay can be a short answer, usually not less than 100 words and not longer than three paragraphs (sections 3.5.6.1 & 3.6.2).

Only bridging essays from summative assessments were collected and analysed in this study because they were given under “test conditions” meaning that participants wrote them without help from anyone, in the classroom, with the teacher present. This provided for a clearer picture of the individual participant’s ability in terms of reading, understanding and writing the bridging essay. In addition, the bridging questions for each unit did not become more difficult with each subsequent literary piece, they were challenging from the very beginning. Each question presented completely new information with which the student was not familiar.

For the critical analysis, 18 bridging essays were selected based upon three criteria. Those included the essays which showed the most improvement the least improvement and average improvement from the first set of bridging essays and the third set of bridging essays.

The researcher read each of the 18 bridging essays, beginning with the first set, determined to what degree the participant had fulfilled each of the categories specified in the rubric and compared it to the third set of bridging essays to determine the level of improvement shown from the first to the third bridging essay.

4.6.2 Opinionnaire

An additional qualitative aspect of the study was conducted in which each of the participants answered five questions on an opinionnaire (appendix H) which consisted of open-ended questions. The open-ended responses allowed the researcher to explore reasons for the responses and identify overlapping themes or the number of times that the participants mentioned the themes (Creswell 2012:219). The participants needed to indicate reasons for their answers and this provided for a more sophisticated collection and analysis of the research questions as well as the results (Creswell 2006:13).

This was in line with Onwuegbuzie’s *et al* (2012: 23) argument that questions on an opinionnaire or questionnaire should not lend themselves to just

“yes/no” responses. They should, whenever possible, offer the respondents the opportunity for explaining their answers and providing examples that will show a clear understanding of the information intended to measure.
The five questions on the opinionnaire were:

1. Did you enjoy reading the pieces in the Literature Bagrut programme? Give two reasons for your answer.
2. Name one aspect of the literature programme which you found challenging. This could be from either the reading or writing assignments. Explain why it was challenging.
3. After completion of the literature Bagrut programme, can you identify different types of HOTS? Briefly describe one that you learned.
4. Do you feel that you will be able to use HOTS in reading a text? Give one example.
5. Do you feel that you will be able to use HOTS when writing essays? Give one example.

4.6.3 Validation of Opinionnaire Questions

Each of the five questions on the opinionnaire relates to the process of the acquisition of higher order thinking. According to Facione (1995:3-4), Pascarella and Terenzini (1991:118), Downs (2008:60), Duron (2006:160), Zoller, *et al* (2007:353), Halpern (2007:7), Hendrickson (2008:679), Patterson (2011:38), Roth (2010:1) and Arend (2009:2), some of the traits and dispositions that a person who displays higher order thinking must have (section 2.5) revolve around a complete approach. This includes teaching inquisitiveness, creativity, open-mindedness and having confidence in reason. Furthermore, higher order thinking means learning the micro skills and the macro skills or the parts which are essential to understanding the whole (Paul 1990:11). It includes making connections between different pieces of information, comparing and contrasting and inferring information from what one reads, sees or hears. Deductive and inductive strategies are necessary to develop an interactive approach to reading in order to comprehend the reading material (Stanovich 1980:43; Abraham 2000:6). In addition,

metacognition or the ability to reflect upon one's thinking is an essential skill of the person displaying HOTS (Pogrow 2004:2; Halpern 2007:9; Dean & Kuhn 2003:1; Magno 2010:137; Zohar & Ben David 2009:185).

Question number one, which asked participants if they enjoyed reading the literary texts in the Bagrut programme, elicited responses that showed their inquisitiveness, open-mindedness and metacognitive abilities (section 5.3.2). Participants were exposed to many types of literary texts and in order to relate to them they had to be open-minded, ask questions about the characters or meaning of the texts and reflect upon the work that they did.
Question number two (section 5.3.2) required participants to name one aspect of the literature programme which they found challenging and explain why it was challenging. This question encouraged participants to reflect upon what they had learned, what was difficult and to explain why it was difficult. This involved HOTS as well as metacognitive thinking.

Question number three (section 5.3.2) required participants to identify and describe a HOTS. This question could only be answered by understanding the micro skills, or learning the meaning of terms and explaining the distinct aspects of a HOTS (Paul 1984:11). This is essential to understanding the whole, or how to apply this skill which is asked in questions four and five.

Question number four (section 5.3.2) asked participants if they would be able to use HOTS in reading a text and to give one example. Reading is a macro skill, however, the participants had to display deductive and inductive strategies to understand the meaning of the text as well as micro skills to understand how the HOTS helped them to comprehend the whole text (Abu Shihab 2007:211), in order to answer this question.

Question number five (section 5.3.2) asked the participants if they would be able to use HOTS when writing essays. This question required the participants to show creativity and confidence in reason as well as an understanding of inductive, micro and macro skills. When writing with HOTS the person must strive to understand the discrepancies between facts and

ideals, moving from micro to macro skills which are an inductive reasoning process (Paul 1992:18). Those participants who were able to answer this question showed an understanding of these HOTS.

4.7 DATA ANALYSIS

The methods used in analysing the data included: 1) content analysis of the answers on the opinionnaires, which included segmenting and coding the answers and assembling a master list to discover the themes revealed; 2) critical and interpretive analysis of 18 purposefully sampled essays that represented least and most improved in writing and 3) statistical analysis of the marks obtained from 50 participants at three different times during the programme (total of 150 bridging essays) that were assessed by means of a rubric.

4.7.1 Quantitative analysis of essays

The quantitative method of analysis involved a statistical analysis of the marks on three bridging essays from 50 participants. Three qualified and experienced EFL teachers read and marked 150 bridging essays each. The marks were entered into a software program (section 4.7.1.2) and graphs and charts were created to enable the researcher to determine if the bridging essay marks improved during the time period of the curricular initiative.

The quantitative aspect of this research's main objective was to determine whether teaching HOTS and providing opportunities for students to apply it to their writing would improve their ability to write with HOTS. Rubrics are especially effective in all of these assessment areas (Comer & Haynes 1991:272). The bridging essays were marked based on quantifiable criteria on a rubric, however, the nature of the bridging question allowed for several interpretations of what participants concluded was the "connection" between the literary text and the unfamiliar text.

4.7.1.1 Grading rubric

A grading rubric (appendix E) was used to assess the essays. The importance of using a rubric is that it identifies the criteria that define the student's performance and it makes sure that the performance assessed is observable and measurable. The rubric measures the domain content for which it is constructed (Johnson & Christensen 2006:142). In addition, it has the ability to capture vital information about students' competence in their foreign language acquisition, especially in terms of assessing the process of writing (Jacobs & Farrell 2001:7).

The rubric used to measure participants' achievement in writing and in answering the bridging question was developed by the Ministry of Education English Inspectorate with slight modifications made by the researcher (section 1.9.3). The modifications were made on the rubric for this study to more clearly delineate and measure the categories of, writing an accurate explanation of the unfamiliar information given, "making connections" between the literary text and the unfamiliar information and providing at least one example in the essay to support that "connection". On the Ministry of Education's bridging essay rubric the category of "making connections" is combined within the "content" category (appendix F) which includes "organization of content" including showing an understanding of the unfamiliar information presented in the bridging question, explicit stating of the "connection" between the unfamiliar information and the literary text and written examples from the text to support the "connection" made in the bridging essay.

The modification made in the rubric for this study delineated separate categories for content and organisation, explanation of the meaning of the new information, application of the HOTS of "making connections" and examples provided showing the connection. The HOTS of "making connections" was the only HOTS assessed in the bridging essays because this is the HOTS that each bridging essay demands the students to utilise. The marks given by each of the three markers, in five different categories,

were entered onto a spread sheet and analysed with statistical software to determine the progression of scores of each participant over the two year period.

The results were charted on a rating scale using descriptive statistics (Leedy & Ormrod 2010:28) to rate the initial, interim and summative results on the participants' writing; firstly, in all five categories on the rubric, secondly on, category one and five (content/organisation and language and mechanics) and thirdly, the three categories which measured the ability to apply the HOTS of "making connections". This enabled the researcher to isolate the categories connected to writing with HOTS and to evaluate participants' development in this area.

4.7.1.2 Statistical analysis of marks obtained for bridging essays

The method used for analysis of the marks obtained for bridging essays by means of the rubric was descriptive multivariate analysis of the variables on the participants' scores (Leedy & Ormrod 2010:30) These statistics were used to summarise, organise and reduce the grades on the 150 writing formats (Marczyk, *et al* 2005:149) to numerical quantifiable data. The grades were plotted on a histogram showing the frequency distribution transformed from the rank ordering, or ordinal scale of the marks, at each of the three different time periods (figure 5.1, 5.2; 5.3).

Descriptive statistics provided a summary and visuals (graphs and charts) which summarised the outcomes of the data collected on the rubric. A multivariate analysis is used to show the relationship between different variables. The scores of three different markers on three bridging essays of 50 participants were compared and the mean scores analysed through descriptive multivariate analysis.

The statistical data analysis software (STATA) and Statistical Package for the Social Sciences (SPSS) software were used to calculate the means in graph and chart format. SPSS software combines statistical analyses and graphical displays of the necessary data. STATA does the same however the graphs

can be customised and are easier to transfer in a word file. Both packages are used in educational research (Dunleavy 2003:185).

In addition, the combined mean scores over time of all three markers were plotted on a line graph to illustrate the overall progression of scores from the first, second and third bridging essays (figure 5.4, 5.5 & 5.6). Tables were made in which the scores were listed from highest to lowest to show the number of times each score was obtained (table 5.1).

4.7.2 Critical and Interpretive Analysis of Essays

Apart from a quantitative analysis of the participants' performance on the bridging essays, a critical an interpretative content analysis of a purposeful sample of 18 bridging essays was also done. The sampling of essays included what Glaser and Strauss (1967:101-116) call "constant comparison method". This is where the researcher compares whole texts and asks how this text is different from the preceding text and what types of things are mentioned in both. The first and third bridging essays of nine participants who showed most improvement, least improvement and average improvement were critically and interpretively read in order to analyse the content of each of the essays. This provided a way to expound upon the meaning of the scores given by the markers and to determine whether or not participants' ability to use the HOTS of "making connections" improved from their first essay to their third essay. Furthermore it enabled the researcher to determine other areas of improvement or lack of improvement in participants' ability to write a bridging essay.

The qualitative analysis of several bridging essays showed the relationship between participants' practicing their writing using the HOTS of "making connections" and their ability to construct deeper meaning when understanding the possible connections between two different texts (categories two, three and four on the grading rubric). The bridging essays were also analysed in terms of participants' writing abilities in the areas of

content/organisation and language use/mechanics which represented categories one and five on the grading rubric.

4.7.3 Qualitative Analysis of Opinionnaires

The analysis of the qualitative data from answers on the opinionnaires involved aggregating the words or images into categories of information and presenting the diversity of ideas gathered in the data collection process (Creswell 2006:6; McMillian & Schumacher 2010:376). Onwuegbuzie, Leech and Collins (2012:27) state that the analysis of the data collected in a qualitative study undergo firstly, constant comparison analysis which is a reducing of the answers to codes and then developing themes from the codes, secondly, classical content analysis which is systematically reducing the answers to codes then counting the number of codes, thirdly, keywords-in-context, identifying keywords and utilising the surrounding words to understand the underlying meaning of the keyword; fourthly, theme analysis which involves a search for relationships among the answers, fifthly, discourse analysis, which is selecting representative or unique segments of language use and then examining the selected lines in detail for rhetorical organisation, variability and accountability and finally, text mining or analysing naturally occurring texts within multiple sources in order to discover and capture semantic information.

The answers to the open-ended questions on the opinionnaires were segmented, analysed and coded. The data was translated into categories or themes and a coding frame was developed (Hsieh & Shannon 2005:1277, Schreier 2012:4). The coders identified words or thoughts that were repeated with regard to participants' understanding of HOTS and their feelings about the curricular initiative. Each of the five open-ended questions elicited answers which enabled the researcher to determine if participants could mention and explain what HOTS are, what challenges the literature programme presented to them and how participants could use HOTS in their reading and writing in the future.

4.7.3.1 Analysis of opinionnaire questions

The textual analysis of the questions on the opinionnaires was done by collecting the opinionnaires from each participant, reading the answers, making notes on the relevant information, identifying categories for each item by segmenting the information and then linking the categories into themes, both major and minor.

4.7.3.2 Segmenting

Segmenting involved dividing the data into meaningful analytical units. The process was one that required several readings of the answers on the opinionnaires and extrapolating meaning that was documented for this study (Grbich 2013:65). Specific words, which described the participants' opinions on the literature programme, were underlined to form a segment, as were definitions of HOTS and examples of how the participants wrote they could apply those HOTS to their reading and writing.

4.7.3.3 Coding of opinionnaire questions

The coding sheet categorised the answers into five groups, one for each question, which reflected the participants' opinion of the programme and discerned whether or not they could define a HOTS which they learned and give an example of how it could be applied to their reading and writing.

Both the researcher and another trained EFL educator, experienced with teaching the literature programme, segmented the answers to the questions and then created a coding sheet which became the master code sheet.

The coders participated in two coding sessions to discuss the logic behind the creation of the coding sheet from each of the opinionnaires. Findings were compared to assure inter-coder reliability, which involves consistency among various coders (Johnson & Christensen 2010:509). These were inductive

codes which were generated as a result of directly examining the data during the segmenting and coding process.

The inductive approach was motivated by three main reasons (Thomas 2003:2). Firstly, to condense the varied raw data into brief summary format; secondly, to establish clear links between the research objectives and the summary findings derived from the data and to make sure that they are transparent and defensible and three, to develop themes about the experiences expressed in the data.

4.7.3.4 Assembling of a master list

Codes are labels for assigning units of meaning to the descriptive information compiled in a study. They are usually attached to segments or “chunks” of words, phrases, sentences or whole paragraphs (Miles & Huberman 1994:56). As the codes were developed, through constant comparison analysis of the opinionnaire answers, they were added to a coding sheet or a master list, which was a list of all of the codes, used in the qualitative analysis of the opinionnaire answers. Creating the master list enabled both coders to re-apply the same codes from the list to a new segment of text, the answers to the opinionnaire questions, each time an appropriate segment was encountered (Johnson & Christensen 2004:504).

4.8 DATA INTERPRETATION

Data interpretation of this triangulated study comprised of reading, understanding, comparing and explaining the results from the quantitative and qualitative study of the bridging essays and the qualitative analysis of the bridging essays and the opinionnaires. First of all, the scores on the150 bridging essays were analysed statistically comparing the first, second and third set of essays to determine the progress or lack of progress made in terms of the participants’ writing of a bridging essay.

Secondly, 18 purposefully selected bridging essays were analysed qualitatively. Both the quantitative and qualitative analysis of the bridging essays helped to more clearly interpret the data collected. Information from the opinionnaires was analysed in order to extrapolate themes from the answers participants wrote.

4.8.1 Quantitative interpretation of essays

One of the questions that Moskal and Leydens (2000:3) ask when interpreting the evidence from the data is how do the scoring criteria reflect competencies that would suggest success on future or related performances? The criterion-related evidence was based on the extent to which scores, in this case obtained by using a grading rubric (appendix E), could be used to predict or infer performance on the benchmark of using higher order thinking in participants' writing after the intervention.

Meticulous attention was paid to evaluating the scores that each marker gave on each bridging essay so that the information could be understood and explained in terms of participants' progress over the two year period in which they were learning the literature programme and writing bridging essays. This was achieved by meeting with the markers on three different occasions during the marking period to ensure that the rubric categories were clear to them, all of the rubric categories were scored and the addition on all of the final marks was correct.

4.8.2 Qualitative interpretation of essays

A purposeful sample of 18 bridging essays was critically analysed and interpreted by the researcher. Participants' bridging essays were typed including the mistakes that they wrote (sections 5.4.1.1, 5.4.1.2 & 5.4.1.3) and analysed with the purpose of discerning their ability to write a bridging essay which included a HOTS.

Competency or lack thereof in terms of writing a bridging essay and utilising HOTS in their writing was discussed as part of the data interpretation in the qualitative study. In addition to focusing on the ability to apply HOTS, the participants' ability to write coherently, e.g. content/organisation and language use/mechanics was discussed in the qualitative data interpretation. This differed from the quantitative interpretation of the bridging essays which looked at the final marks on each essay (average for all markers).

The qualitative interpretation of the data was based on the average of two final marks for each essay, categories one and five on the rubric (content/organisation and language use/mechanics) and the ability to write with HOTS, categories two, three and four on the rubric (appendix E). The qualitative interpretation of the bridging essays helped to clarify the meaning of the marks the participants received on their essays which was one of the sub-questions of this study, namely to what extent has 10th and 11th grade EFL Israeli students' ability to apply HOTS to their bridging essays, after completing two years in the English literature programme, been improved?

4.8.3 Qualitative interpretation of opinionnaires

The information obtained from the answers on the opinionnaire questions provided further data on whether or not participants' could demonstrate an understanding of HOTS by naming one and providing an example of how they could apply it to their reading and writing and what participants' opinions about the literature programme were after two years. Participants' responses were quoted and examined and specific themes emerged from the findings that are discussed in detail in chapter six.

4.9 QUALITY MEASURES

Issues of the validity, reliability and trustworthiness of a study must be addressed in all research. Quality measures for this research comprised of paying close attention to the validity and reliability in the quantitative study. This involved ensuring the internal validity by using a longitudinal design to

collect three separate sets of data over an extended time period thereby reliably establishing a cause and effect relationship between the dependent and independent variables. The external validity of the rubric instrument along with inter-rater reliability of the three markers further ensured that quality measures where adhered to in the course of the study. For the qualitative part of the study, issues of trustworthiness and inter-coder reliability were used to ensure quality measures were seriously considered.

4.9.1 Validity

Validity refers to the appropriateness of the interpretations, inferences and actions that are made based on the results which are obtained from tests or research (Johnson & Christensen 2004:140). The validity indicates the degree to which the results are credible and dependable and refers to the degree to which the data supports that the interpretations are correct (Moskal & Leydens 2000:1). Both internal and external validity of the quantitative results are discussed as well as threats to the validity, based on issues of possible extraneous variables (section 5.2.5).

Scoring rubrics for analysing the written formats met the requirements of validity. The quantitative data collected in this study came from a valid assessment instrument because the rubric used to measure the content of the participants' writing had clear criteria for answering the bridging question and the construct validity was accurately represented in that there was a clear definition of what the construct of a bridging essay entailed as outlined in the five categories of the rubric (appendix E). In addition, the participants were familiar with the criteria outlined in the rubric and understood how their bridging essays were being marked.

4.9.1.1 Internal validity-longitudinal design

The researcher devoted special attention to the validity of the information gathered from the participants. To support the internal validity, the interrupted time series design was followed. The interrupted time series design, a

longitudinal design, involving multiple marking of the participants' writing, was measured over a two year period. This enabled the researcher to plot a trend and further observe the effect of the independent variable on the dependent variable in this study (Marczyk, *et al* 2005:143).

One concern with the interrupted time series design is the issue of internal validity. The question is could it be possible that rather than the independent variable (the literature programme) having the effect on the dependent variable (the participants' writing) that in fact the effect was due to a confounding variable? Possible threats to the internal validity of the quasi-experimental design of interrupted time series are history, maturation and testing (Biglan & Wagenaar 2000:10-11).
History is when an event occurs at the same time the curricular initiative is being taught. For example, participants could be learning how to write essays with HOTS in other subjects during the time they were learning HOTS in the literature programme. Maturation has to do with the participants' change over time. For example, as the participants get older one could argue that their thinking skills become naturally more focused. The third threat to the internal validity has to do with testing. This argument states that a participant's performance on a test may change over time because they are familiar with the examination and therefore do better on it with each subsequent attempt (Biglan, *et al* 2000:40).

In terms of the threat of history, the participants in this study only wrote in English in their EFL classes and did not receive any other instruction in writing essays using higher order thinking and literature in any other classes in school. Therefore, it is highly unlikely that the internal validity of the interrupted time series in the area of history would be a confounding variable.

One plausible threat to the internal validity was maturation. Because the bridging essays for the 50 participants were collected over a two year period, from tenth grade to eleventh grade, the dependent variable, the participants' bridging essays, could be unstable because of maturational changes (Marczyk, *et al* 2005:269). However, two years is not such a long time and the

results showed that most participants showed improvement on their bridging essays after the first year in the study (section 5.2).

Furthermore, the Ministry of Education English Inspectorate has been very clear in their instructions that this programme must not begin until the tenth grade and students must work on the literature unit for at least two years before taking the Bagrut examination or turning in their literature log grades to the Ministry of Education (Integrating HOTS with the teaching of literature: teacher's handbook 2013:7). The Ministry recognises that students must achieve a certain maturity level to begin learning the literature programme and therefore they wait until they have finished their first year of high school before being exposed to it.

According to Yan and Lou (2008:618) one of the unique controversial features in longitudinal measurement, that reduces validity and reliability of measurement, is that the same instrument is used repeatedly over time to generate the outcomes. This argument states that test performance could be a confounding variable. However, each bridging question was different and subsequent bridging questions were not more difficult as the programme progressed. Participants did have to use the same format for writing each bridging essay, so it is possible to say that with each bridging essay the writing became easier; however, because each bridging essay was based on a different literary text, the issue of "the test practice effect" was not a confounding variable.

4.9.1.2 External validity of rubric instrument

Wolfe and Stevens (2007:8) recognise the validity of the rubric instrument as a tool to assess students' writing. They assert that using rubrics as an assessment instrument enables teachers and researchers to get a clear picture of the strengths and weaknesses of their students' performance based upon a set of explicit and descriptive criteria.

The scoring rubrics designed for this study was used for evaluating the bridging essay. The scores calculated to what extent the participants' writing

improved and reflected their knowledge in the area of applying the HOTS of "making connections". All of these measurements met the criteria outlined by Moskal and Leydens (2000:3) for attaining external validity.

4.9.2 Reliability

Reliability refers to the consistency or stability of the scores in a quantitative study. Inter-rater reliability refers to the consistency of scores of two or more independent raters (Johnson & Christensen 2004:132). It becomes a factor when two or more markers are marking essays such as was done in this study. Inter-rater reliability is concerned with the possibility that participants' scores may vary from marker to marker because of the subjectivity of the different markers. Although inter-rater reliability does not completely ensure validity, when it is not established properly, the data and interpretations of the data cannot be considered valid (Lombard &Grosser 2004:213).

Consistency in the scores of the three markers, from three different bridging essays, collected at different periods from the same participants determined the level of reliability in the quantitative aspect of this study (section 5.2.4). Furthermore, Creswell (2014:174-176) postulates that a scoring rubric which has well-defined criteria and erasing the names from the essays helps to ensure consistency in scores and objectivity.

The scoring rubric, with its defined set of criteria, as well as two training sessions with the markers before they began marking the bridging essays alleviated many issues pertaining to inter-rater reliability. The researcher "scrubbed" the names off of each essay and each participant was assigned a number (from one to fifty). Therefore, since there were no names on the bridging essays marked, there was no concern that the markers might be familiar with the participants. This further helped to ensure inter-rater reliability and objectivity.

By using rubrics as an assessment tool, a vital component of inter-rater reliability was ensured because the markers were focused on the instructional

aims of the bridging essays. The level of marker experience and diversity was not an issue as they were all experienced EFL teachers who were trained in teaching and marking the literature programme.

In order to establish satisfactory levels of marking consistency, the markers met during three sessions to review ten participants' bridging essays. This served to invigorate the assessment process and helped to maintain more consistent marks as well as alleviate issues with inter-rater reliability (Moskal & Leydens 2000:6).

4.9.3 Trustworthiness

According to Gillis and Jackson (2002:342) there are four essential criteria for the trustworthiness of qualitative research, namely credibility, dependability, transferability and confirmability. The main issue addressed by trustworthiness is how the researcher can show that their findings from the inquiry are credible (Lincoln & Guba 1985:290). In addition, it is important to establish inter-coder reliability among different coders when evaluating qualitative data.

4.9.3.1 Credibility, transferability and confirmability

Credibility refers to the accuracy of the data collected. It depends less on sample size and more on the richness of the information gathered and analysed (Corbin & Strauss 2015:345). The 18 essays collected as part of the qualitative study provided a wealth of information. They were accurately transcribed and analysed based upon the criteria established for writing bridging essays.

In the case of the opinionnaires, there were five questions answered by participants who had been in the programme for two years and who had also participated in the quantitative aspect of the research by writing bridging essays over that two year period. The answers to the questions provided the researcher with rich information that expressed participants' feelings about the

literature programme as well as providing them with another opportunity to express the knowledge they had gained in the area of HOTS.

The dependability, or the stability (Berg & Latin 2008:165) as described in the qualitative part of this study, was determined by two coders who were both teachers in the programme and who worked together during the segmenting and coding process as well as in the creation of the master code sheet.

The findings in this study could only be transferable to other high schools if the conditions in those schools are in accordance with the two schools in which this study was conducted. These criteria are that the participants are at the five point Bagrut level, the most challenging EFL level and that their teachers have been trained in implementing the literature programme. With those criteria in place there is a high probability that the outcomes of the research would be the same.

The data was meticulously transcribed and it was checked by the researcher, and another coder. This will enable future researchers to transfer the information to other studies as well as to understand the results of the current study (Johnson & Christensen 2004:504; Neuendorf 2002:141; Tinsley & Weiss 2000:98)**.**

Confirmability, according to Lincoln and Guba (1985:320-321) refers to the degree to which the researcher can demonstrate the neutrality of the research by providing an audit trail of firstly, raw data; secondly, analysis notes and thirdly, process and personal notes. The key aspect of confirmability has to do with being objective. In other words, can this study be confirmed by a similar study? The neutrality of this research can be demonstrated as well as the raw data and the researcher's, markers' and coders' notes and therefore there is a strong probability that future studies would confirm the outcomes of this research.

To further ensure the objectivity of the research markers were not told that their marks would determine whether students' writing of the bridging essays had improved over time. In addition, they did not know which set of essays

they were marking whether they had been the first, second or third set over the two year period. They were simply instructed to grade each set according to the categories of the grading rubric.

4.9.3.2 Inter-coder reliability

Inter-coder reliability means that there is a high consistency among different coders in using the appropriate codes assigned to each answer on the questions (Johnson & Christensen 2004:504). It adds to the objectivity of the research and reduces errors due to inconsistencies among coders (Johnson & Christensen 2004: 504). To help ensure inter-coder reliability, the researcher and one other EFL educator in the programme coded the answers for each opinionnaire. Inter-coder reliability in this study was consistent in that the other coder underwent training and had complete access to the researcher, during the coding period, to ask questions and clarify responses on the opinionnaires.

4.10 ETHICAL CONSIDERATIONS

Ethical measures in educational research imply that it is the investigator's responsibility to ensure that the study they do is ethically acceptable and that the research participants are treated ethically by everyone involved in the study (Johnson & Christensen 2004:102). This means that the researcher must procure the informed consent of the participants/respondents, or if they are under 18, parental consent. In addition, the research participants must know that they are free to withdraw from the study at any time without negative repercussions, the research participants are protected from any physical or mental discomfort and the confidentiality and/or anonymity of the participants and the data must be protected (BERA 2011:6).

The ethical measures taken in this study by the researcher showed sensitivity to the participants' privacy. The proper consent forms were collected from participants, their parents/guardians; principals from the two schools and the English Inspectorate in the area (appendices C, A & B). All questions posed

by the individuals involved in the study were addressed and any participant who wished at any time to discontinue participation in the research could choose to do so without prejudice.

Ethical norms in research promote the aims of research, such as truth, knowledge, accountability, fairness and mutual respect (Resnik 2015:1). The ethical principles that one hopes to adhere to further the goals of educational research which also include confidentiality, non-discrimination and taking special precautions with human subjects by informing them of the procedures and aims of the research and obtaining their consent (Johnson & Christensen 2006:102; Resnik 2015:2 ; BERA 2011:4). These norms were adhered to throughout the collection and analysis periods of the bridging essays and opinionnaires as explained above.

Educational researchers must operate within ethical boundaries that include treating individuals with respect, sensitivity, dignity and freedom from prejudice. These guidelines represent the “tenets of ethical practice that have served (the) community of researchers well in the past and will continue to do so in the future” (Gardener 2011:3).

Confidentiality means, not disclosing any information provided by an individual, accidentally or deliberately with others in a way that might identify that individual. It also refers to presenting findings in ways that ensure individuals cannot be identified and ensure their anonymity (Talerico 2012:4; Cohen, Manion & Morrison 2007:76).

To preserve the anonymity of the participants in the data analysis, names were substituted with numbers on both the bridging essays and the opinionnaires. When the first set of bridging essays was collected, the researcher assigned each participant in the study a number from one to fifty (4.10.2). “Data cleaning” or “scrubbing” (Talerico 2012:20) was conducted by removing all identifiers on the bridging essays and opinionnaires to ensure confidentiality.

This research was carried out under the guidelines and approval of the ethical requirements specified by the University Of South Africa College Of Education Research Ethics Committee and ethics clearance was obtained before the study commenced (appendix D).

4.11 SUMMARY

The rationale for the research design and methods for this study was to determine what are the pertinent challenges and key guidelines in introducing and assessing students' HOTS in a literature based EFL curriculum. The research paradigm employed was interpretive/constructivism. The interpretive /constructivism paradigm recognises the obligation of the researcher to use his/her judgments and perspectives to play a role in interpreting the data. This is permitted because there are systematic procedures for gathering and evaluating that data which are based on experience, practical and logical thinking and sound judgments. The researcher systematically gathered information, in this case 150 essays from 50 students over a two year period and 50 opinionnaires.

The choice to use a mixed methods approach, with a quasi-experimental design of interrupted time series, for the quantitative part of the study and an opinionnaire and analysis of bridging essays for the qualitative aspect of the study, allowed for a better understanding of the research problem. It also postulated that the data, which was gathered from both the quantitative and qualitative studies, increased confidence in the results and in conclusion validity (Johnson & Christensen 2004:430) more than a single methods approach would have done.

Triangulation, a subset of mixed methods research, was chosen for this study because the mixing of the quantitative and qualitative data was concomitant (section 4.3.2.3). Participants' bridging essays were collected during three specific intervals and were marked by three markers and statistically analysed. Eighteen purposefully selected bridging essays underwent a qualitative analysis as did the answers on an opinionnaire that every

participant completed. The data collected complemented one another and provided rich and saturated information that could be used to analyse and interpret outcomes of the curricular initiative.

Participants were selected from two high schools whose students were in the most challenging level of English, the five point EFL Bagrut classes, by means of purposive sampling. The data collection process, method, data analysis and data interpretation were discussed and explained. A grading rubric was used to analyse the bridging essays. This rubric was created by the Ministry of Education English Inspectorate rubrics for marking writing assignments and bridging essays with a modification made by the researcher that specifically delineated the categories which were essential for measuring HOTS.

Bridging essays were qualitatively analysed by the researcher which clarified the categories on the rubric with examples directly quoted from participants' writing. The opinionnaires were read by two coders. The information was segmented and a master list was assembled which allowed the researcher to analyse and interpret the answers to the five questions on the opinionnaires.

Quality measures were discussed in terms of validity and reliability in the quantitative research and trustworthiness and inter-coder reliability in the qualitative research. Issues of possible confounding variables were also examined.

Finally, this chapter concludes with a discussion on the importance of adhering to ethical norms when conducting research, especially when it involves people. Those guiding principles for educational research can be found in the British Educational Research Association's Ethical Guidelines for Educational Research (BERA 2011) as well as the ethical requirements specified by the University of South Africa, UNISA.

Chapter five presents the data analysis of the research findings. This includes both the quantitative and qualitative data in an organised format.

CHAPTER 5
DATA ANALYSIS

5.1 INTRODUCTION

The main aim of this study was to determine the pertinent challenges and key guidelines in introducing and assessing students' higher order thinking skills in a literature based English foreign language curriculum (section1.6).

In the previous chapter the research design and methods of data collection and interpretation were discussed. It was explained that this study followed a mixed methods approach using both quantitative and qualitative methods (section 4.3). Chapter 4 further provided an explanation of the methods of data collection and an overview of quality measures and ethical considerations that were adhered to during data collection and interpretation. The quantitative and qualitative data results are presented and analysed in this chapter and interpreted in chapter six.

5.2 QUANTITATIVE DATA ANALYSIS

Quantitative data were collected by means of bridging essays (section 5.4) written by 50 high school students in Israel who were at the most advanced EFL level (section 4.2.3) in their high schools.

The quantitative data results were divided into six parts: firstly, the mean scores for each marker were compared to each other in all five categories on the rubric; secondly, the mean scores for each marker were compared to each other in the areas of *content/organisation and language use/mechanics* (categories one and five on the rubric); thirdly, the mean scores for each marker were compared to one another in the areas of *ability to display HOTS in writing with an example* (categories two, three and four on the rubric); fourthly, the mean of the combined scores of all the markers were calculated; fifthly, the mean of the combined scores in the areas of content/organisation

and language use/mechanics were calculated and sixthly, the mean of the combined scores in the areas of displaying HOTS were calculated.

5.2.1 Comparison of markers' mean scores for each set of essays

The mean scores of the three markers for the three bridging essays show the average grade given by each marker on each of the three bridging essays (see appendix I for individual scores given by each marker).

As can be seen from Figure 5.1 the mean scores for marker A increased from 63.26% in the first set of bridging essays, to 81.76% in the second set, to 91.78% in the third set. For marker B the mean scores went from 63.36% in the first set of bridging essays, to 80.82% in the second set, to 90.56% in the third set. Marker C's mean scores increased from 65.28% in the first set, to 81.32% in the second set, to 89.8% in the third set of essays.

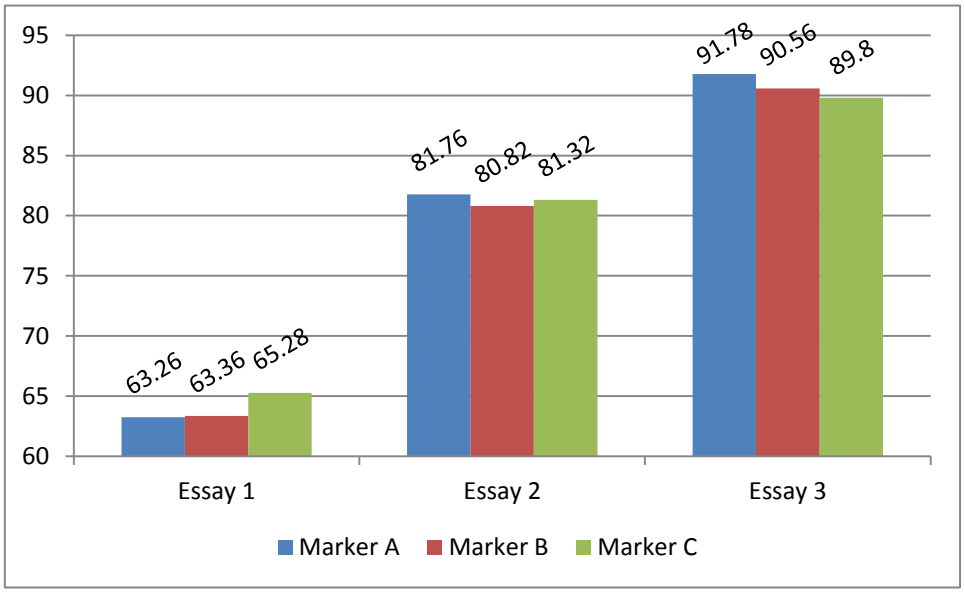

Figure 5.1 Comparison of markers' mean scores

The average marks awarded by the markers on each of the three essays were very close to each other, never deviating more than two points. In addition, there was a substantial increase in participants' scores from both the first to the second essay and from the second to the third essay. The most

prominent feature is the increase in mean scores from the first set of bridging essays to the second set (figure 5.1) where a 20% increase was noted compared to an increase of 10% from the second to the third set of essays.

5.2.2 Comparison of markers' mean scores for categories one (content/organisation) and five (language/mechanics) on the rubric

Although categories one and five on the rubric relate to participants' general writing ability not necessarily connected to higher order thinking, their performance in these two categories is relevant to this study for two reasons. Firstly, to verify the Ministry of Education English Inspectorate's claim that teaching HOTS in a literature curriculum will improve students' writing abilities (section1.5) and secondly, to measure to what extent participants could apply their knowledge of HOTS and express that knowledge in a coherent bridging essay.

These two categories (categories one and five) appear on all the Ministry of Education English Inspectorate rubrics for grading essays (appendix F). The content and organisation category allows the teacher and the student to measure if the essay's content is relevant to the topic, the text is well organised, content is easily understood and the text is written in the student's own words. Language use and mechanics specifically rate the use of correct language structures, correct word order and correct use of connectors, pronouns, prepositions, spelling, punctuation, capitalisation as well as correct use of paragraphing.

As can be seen in figure 5.2 mean scores for marker A in categories one and five increased from 21.08 out of 30 points in the first set of bridging essays to 25.04 out of 30 points in the second set and to 26.34 out of 30 points in the third set. Marker B's scores went from 22.64 in the first set of bridging essays to 25.62 in the second set and 26.08 in the third set. Marker C's scores were 23.62 in the first set of essays, 27.26 in the second set and 27.82 in the third

set. The increase in the marks on categories one and five show that participants' writing, in terms of content/organisation and language use/mechanics, improved during the time they were completing the literature programme. During these two years participants wrote a total of 12 bridging essays as part of formative and summative assessments, thus there was ample time to practice and improve.

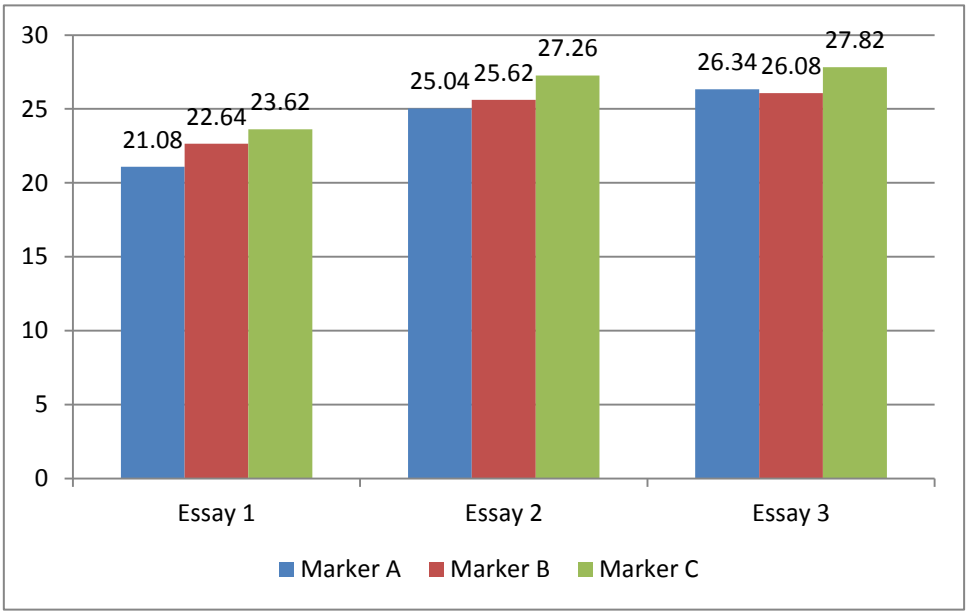

Figure 5.2: Mean scores in contentent/organisation and language/mechanics (categories one and five)

The mean scores (figure 5.2) for each marker compared to each other for categories one and five show that the markers agreed with one another (there was no more than a 2.21 point difference in all the scores). In addition, figure 5.2 depicts a slight yet steady improvement in participants' writing skills mostly from bridging essay number one to essay number three; although there was also some improvement in participants' ability to organise the content in a logical way with correct use of language from essay number two to three. This demonstrates that it took the full two years of the programme for some participants to measurably improve their basic writing skills.

5.2.3 Comparison of markers' mean scores in the areas of displaying HOTS (categories two, three and four of the rubric)

The combination of categories two, three and four of the grading rubric present a picture of the participants' ability to comprehend an unfamiliar piece of information or quotation and to utilise higher order thinking in their writing by "connecting" the unfamiliar information to the literary text studied in class. Category two measures whether or not the participant was able to coherently explain the meaning of the unfamiliar piece of information. Category three measures to what degree the participant was able to make a connection between the unfamiliar information and the literary text studied in class. Category four rates the participant's ability to provide a coherent example from the literary text to support the connection between the unfamiliar information and the literary piece. The combination of these three categories gives an indication of the degree to which the participants could apply HOTS in their bridging essays.

The mean scores in categories two, three and four on the grading rubric (see appendix) revealed a consistent improvement, over the two year period, in participants' ability to explain the meaning of an unfamiliar text and to apply the HOTS of "making connections" in a bridging essay. The maximum number of points participants could receive for these three categories was 70. From figure 5.3 it can be seen that the mean score for marker A is 42.26 out of 70 points for the first set of bridging essays, 56.68 for the second set and 65.54 for the third set. For marker B the mean score for the first bridging essay is 40.82, 55.30 for the second set of essays and 64.48 for the third set. The mean score for marker C for the first set of bridging essays is 41.48, 54.06 for the second set and 61.94 for the third set.

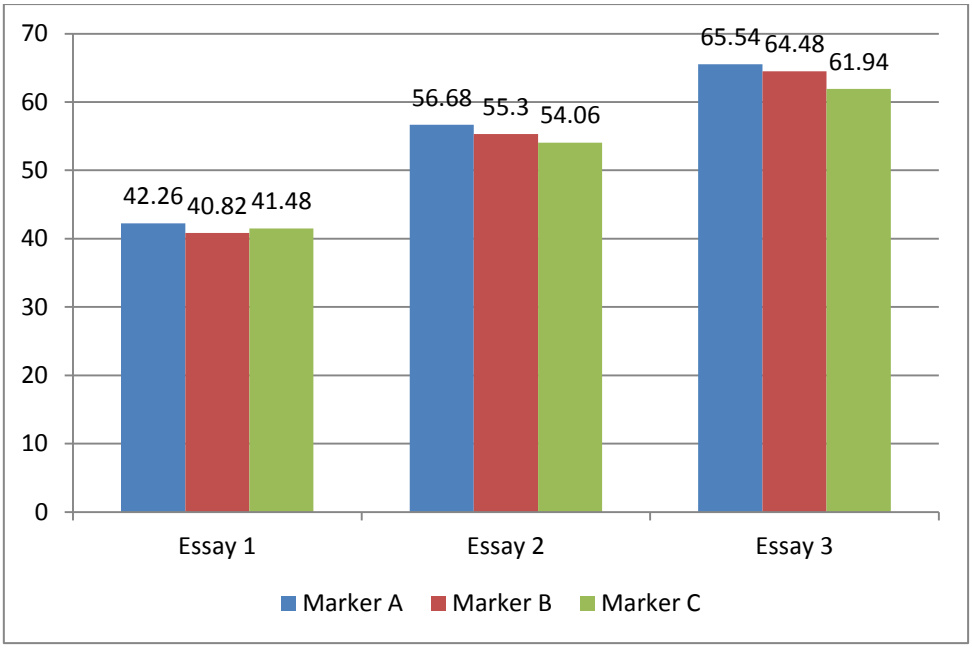

Figure 5.3 Mean scores in displaying HOTS (categories two, three and four)

In the mean scores on the ability to display higher order thinking in a bridging essay, all three markers exhibited agreement in the scoring of the three bridging essays within a maximum of a 3.6 point spread in scores, which is shown on the last essay between marker A and marker C.

5.2.4 Interrupted time series combined scores

The above statistical analysis shows the differences in the grades given by individual markers. The mean scores obtained by the participants for each of the essays are also important because they show how the literature programme affected the skills of the participants over time. There was an upward trend in the participants' grades. There was more of a pronounced improvement from the first bridging essay to the second essay than from the second essay to the third. The second essay was written after participants had been writing bridging essays for one year and had completed half of the requirements in the literature programme.

5.2.4.1 Mean scores on all categories

The participants' average scores, which measured their performance, went from 63.26% for the first essay to 81.76% for the second essay and finally to 91.78% for the last essay.

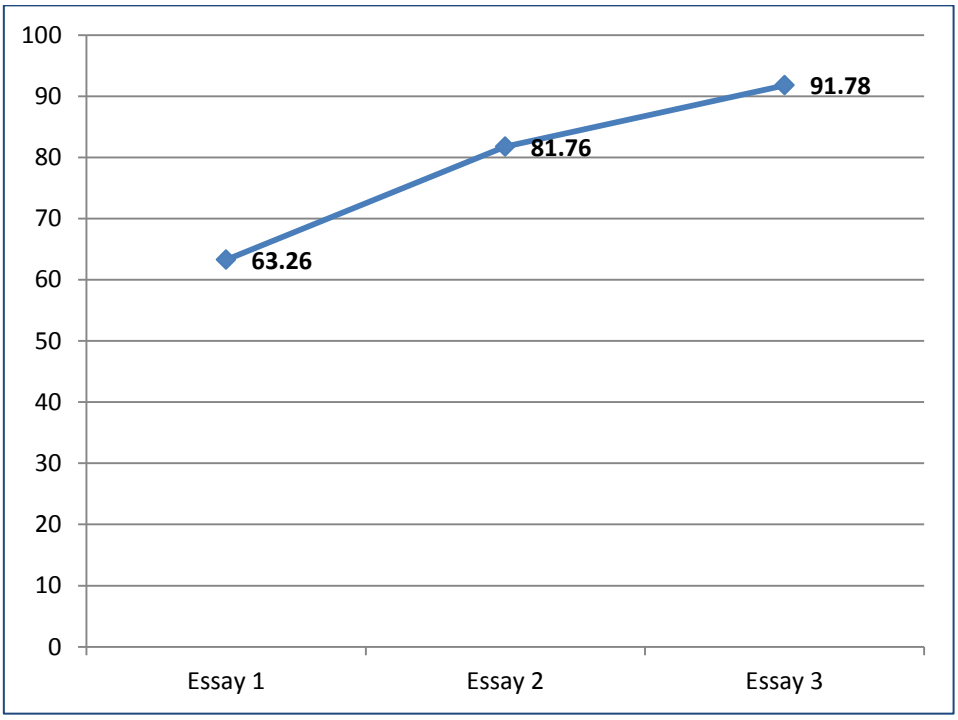

Figure 5.4 Combined mean scores over time on all five categories

Figure 5.4 shows the interrupted time series mean grades for participants in all five categories of the rubric. It reveals an increase of 18.5% in participants' essays from the first assessment period to the second assessment period. From the second assessment period to the third assessment period there is a 10.02% improvement. The increase shows that participants' performance in the use of both language and content organisation and the application of HOTS in a bridging essay, improved over a period of two years.

5.2.4.2 Mean scores on categories one (content/organisation) and five (language/mechanics)

The mean scores for categories one and five increased from 22.45 out of 30 points on the first set of bridging essays, to 25.97 on the second set to 26.75 points on the third set.

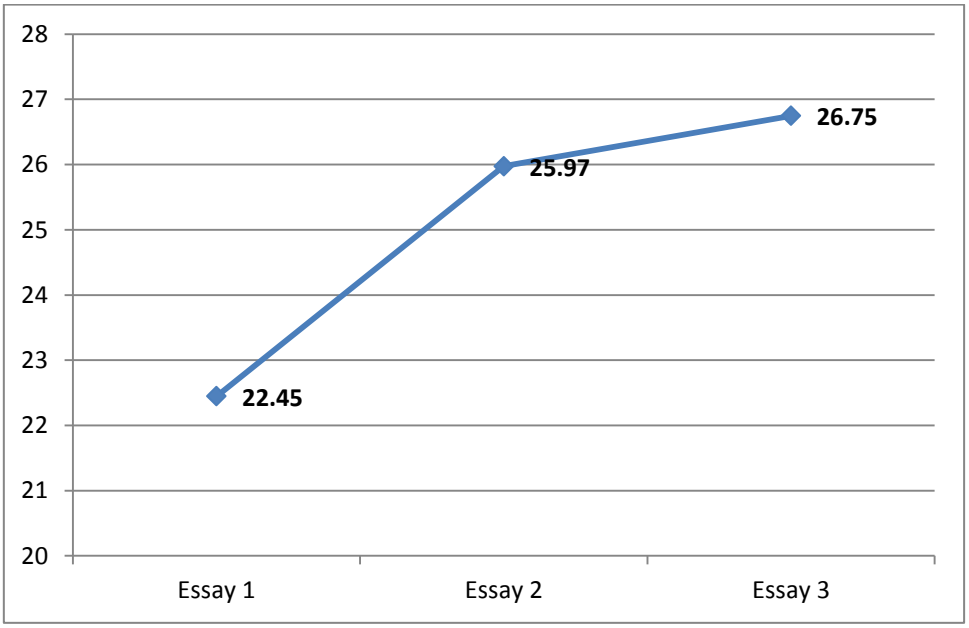

Figure 5.5 Mean scores over time for categories one and five

The interrupted time series mean scores in the area of writing show an increase of 3.52 points from the first assessment period to the second and a small increase (0.78) from the second assessment period to the third. Participants over the two year period improved in the areas of content/organisation and language use/mechanics as they became more proficient in their writing. Figure 5.5 shows that there was an overall increase of 4.35 points for these two categories.

5.2.4.3 Mean scores on categories two, three and four (displaying ability to apply HOTS)

The mean scores for the categories that assess participants' ability to apply HOTS (appendix E categories 2, 3 & 4) increased from 41.52 out of 70 points on the first set of bridging essays to 55.35 on the second set to 63.99 on the third set.

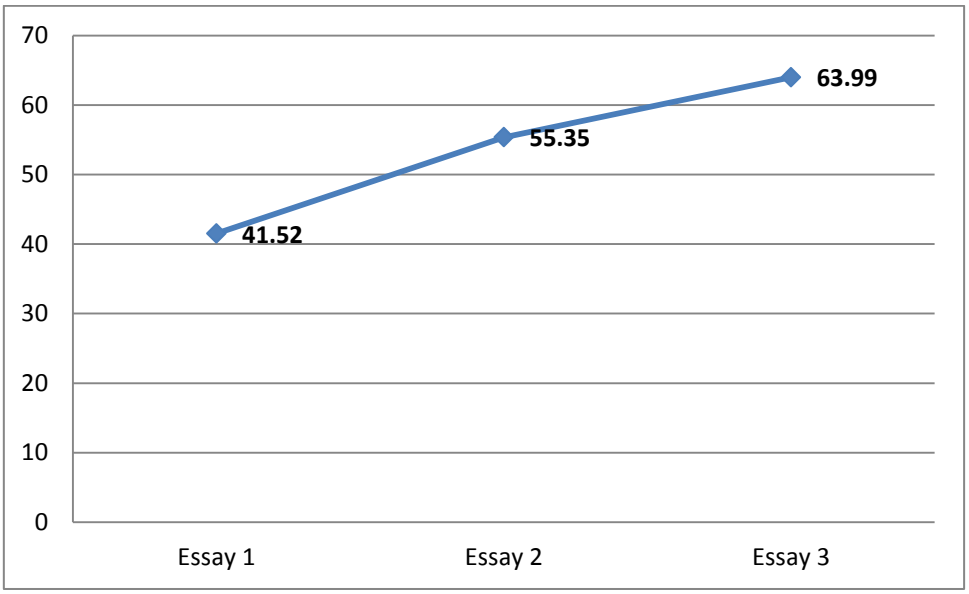

Figure 5.6 Categories two, three and four combined mean scores over time

There was an improvement in participants' abilities to display higher order thinking in a bridging essay during both the second and third assessment period. The interrupted time series design allowed recording of an increase of 13.83 points in participants' performance from the first to the second assessment period. From the second assessment period to the third assessment period there was an increase of 8.64 points with an overall increase of 22.47 points from the first assessment period to the third.

There is a clear improvement in the mean scores for the participants, over the two year time period in the total scores in all five categories of the rubric. In the scores of all of the categories the most marked improvements are from the first to the second bridging essays which show that after a year in this

programme the majority of the participants understood the format of the bridging essay and were capable of writing a quality piece. By the end of the two years the interrupted time series scores revealed that the participants improved in their ability to write a coherent and quality bridging essay which incorporated the goals of the programme that include all aspects measured on the scoring rubric (appendix E).

5.2.4.4 Individual participants' mean scores for essays 1, 2 and 3

Table 5.1 reports on participants' mean scores obtained for each essay. The mean scores which are bold and underlined display numerically those participants who showed no improvement from the first bridging essay to the third bridging essay.

Table 5.1 Individual participants' mean scores for essays 1, 2 and 3

Mean Scores			
Student ID	**Essay no. 1**	**Essay no. 2**	**Essay no. 3**
1	30	96	97
2	90	97	96
3	34	85	99
4	91	98	99
5	74	82	94
6	72	87	76
7	59	83	89
8	65	65	84
9	83	71	94
10	81	85	97
11	65	66	98
12	67	57	76
13	81	85	92
14	90	82	93
15	91	85	95

16	95	96	97
17	50	57	83
18	64	88	91
19	20	63	94
20	96	91	97
21	98	97	98
22	82	88	97
23	52	84	98
24	56	67	96
25	28	93	92
26	57	95	96
27	54	66	93
28	60	96	85
29	51	72	78
30	77	92	93
31	78	95	87
32	69	84	95
33	58	82	85
34	70	66	96
35	75	85	96
36	43	86	96
37	38	89	93
38	49	55	78
39	75	24	73
40	65	78	78
41	54	85	82
42	59	75	96
43	56	84	95
44	64	74	76
45	36	95	95
46	74	93	98
47	86	93	75
48	55	95	94

49	21	75	88
50	61	84	94

Only participants 21, 39 and 47 did not show an increase in marks from the first to the third essay. Of these three, participant 21 received a total of 98 out of 100 on the first essay as well as the last which clearly shows an understanding of how to write the bridging essay from the beginning of the programme. Although marks obtained by participant 39 decreased by two points from a mean score of 75 on the first essay to 73 on the third essay, it is still a good pass mark. Participant 47 went from 86 on the first essay to 93 on the second essay and down to 75 on the third essay.

Because each bridging question presents unfamiliar information such as a quotation (section 5.4.1) it might be that participant 47 did not understand this information and was not able to make a clear connection with the literary piece on the third bridging essay. However, because participant 47 received 87 on the first essay and 93 on the second essay one could argue that this participant did progress in his/her ability to write a strong bridging essay during the programme. Therefore one could conclude that even though almost half of the participants in the programme found the writing challenging (section 5.3.2.), 94% were able to overcome the challenge and by the end of the intervention write a quality bridging essay which required the application of HOTS.

5.2.5 Validity

Two essential types of validity were an inherent feature in this study, namely internal and external validity. The internal validity refers to the degree to which one can conclude that an observed relationship is causal and the external validity refers to the extent to which the observed effects can be generalised to other cases.

5.2.5.1 Internal validity

In all areas of the data assessment the mean scores on the three sets of essays, as well as the mean scores in categories one and five together and two, three and four together, revealed improvement in participants' bridging essays. This shows agreed consensus of three experienced markers that participants learned to read an unfamiliar piece of information (a quotation or passage), explain it, make a connection with this passage to the literary text studied in class and support the connection with an example from the literary text studied (section 5.4.1). In addition, the participants' ability to write correctly and coherently (categories one and five on the rubric) showed improvement over the two year period as revealed by the interrupted time series scores with data obtained from marks on the rubric.

Furthermore, internal validity was ensured with the interrupted time series design because it involved multiple measures of the participants' writing and the data enabled the researcher to plot a trend that showed the effect of the independent variable on the dependent variable.

5.2.5.2 External validity

The external validity was limited because the sample of research participants was not randomly selected. However, the research participants represented a group which provided for a purposeful sampling of participants who were "information rich" (Johnson & Christensen 2005:362) in that with this group a specific phenomenon or causal relationship was illuminated.

Because the data from these bridging essays came from 50 participants who learn at two different high schools in Israel this helped to limit the threat to the external validity. They were among the first group to begin studying literature with HOTS infused. These participants represented the highest level EFL students learning the literature programme in the country. Therefore, the results of this study can only be cautiously generalised across to the highest level of high school EFL students. Further studies with the weaker EFL

students will need to be conducted to determine the extent of the external validity of this study across weaker EFL student populations.

5.2.6 Reliability

Reliability refers to the consistency in the scores of different markers. The three markers on the bridging essays written at three different periods of time showed reliability or consistency in the scores in terms of the mean on all five categories on the rubric (figures 5.1 & 5.4) as well as the mean on categories one and five (figures 5.2 & 5.5) and the mean on categories two, three and four (figures 5.3 & 5.6). The mean scores were never more than three points apart. This shows strong inter-rater reliability among the markers.

Appendix I shows the individual marks given by each of the markers on every bridging essay. Although the individual marks were different for each essay, the scores were in the same range and all three markers noted, within a few points (figures 5.1, 5.2 & 5.3) the progression of performance of the participants during the two years.

5.2.7 Summary of quantitative data analysis

The quantitative data revealed an upward trend in participants' skills in writing bridging essays over a two year period in the literature programme. Three markers with experience in marking bridging essays and in teaching the literature curriculum which infuses HOTS, consistently noted through their marks on the grading rubric that the participants made progress in both writing skills and in applying HOTS to their bridging essays.

What the quantitative data showed was that most of the participants had some difficulty writing bridging essays in the beginning of the programme (figure 5.4) however, after two years they were able to write a coherent bridging essay which showed an understanding of the HOTS of "making connections" between an unfamiliar piece of information and the literary text studied in class. This will be further discussed in the section on mixed

methods data analysis (section 5.4) which includes a discussion of 18 bridging essays which were qualitatively analysed. Out of 100 possible points participants gained on the average approximately 27 points (figure 5.4). This was from their scores on the first bridging essay to the scores on the third one.

The strengths of the data assessed in the quantitative part of this study were that there was a high level of inter-rater reliability in the marks given based on a reliable rubric instrument. This enabled the researcher to measure the causal relationship between the literature programme over a period of time and the progress in participants' writing utilising a specific HOTS. The weakness is that inter-rater reliability is not sufficient to determine a causal relationship (section 4.10.2). Therefore, the quantitative data was analysed concomitantly with two separate qualitative data analysis processes namely, an analysis of a purposeful sampling of 18 bridging essays and an analysis of the answers on an opinionnaire consisting of five questions which each of the 50 participants completed.

5.3 Qualitative Data Analysis

The qualitative study aimed to examine the same phenomenon of the quantitative study (section 1.7). There were two sets of data that underwent qualitative analysis, firstly, 18 bridging essays purposefully selected and secondly, an opinionnaire consisting of five questions. The critical and interpretative analysis of the 18 bridging essays is discussed under the mixed methods analysis as the data obtained from the critical analysis are compared with the quantitative results from the marks on the bridging essays. This section focuses on the data and themes which emerged from the answers on the opinionnaire questions.

The qualitative discussion of the opinionnaires explains how the answers to the questions were segmented and coded. An analysis of each of the answers obtained on the opinionnaire ensues. This includes specific themes identified in participants' responses.

5.3.1 Segmenting and coding

A copy of the final master coding sheet (appendix H) used to code the answers on the opinionnaires went through the process of segmenting comparison analysis; keywords in context and theme analysis (sections 4.7.3.2 & 4.7.3.3). The answers on the opinionnaires were read several times by the researcher and segmented into keywords. From those keywords themes were extrapolated. In other words, the incidence of similar answers to the same questions was identified and participants' opinions and examples were carefully segmented so that the themes that emerged could be analysed and coded.

The master coding sheet was created with a reflexive process by which the two coders continued to ask three questions, firstly, what is it we want to know, secondly, what do the data tell us and thirdly, what is the dialectic between the first two questions (section 4.7.3)? The master coding sheet relates to the five questions on the opinionnaire (appendix H).

5.3.2 Data analysis per opinionnaire

Each of the five questions on the opinionnaire were analysed by the coders to understand themes and patterns which emerged from the data. The following discusses each of the questions separately with quotations from the answers provided by the respondents.

- **Question one**

Question number one on the opinionnaire asked the participants if they enjoyed reading the texts in the literature Bagrut programme. They were also asked to give one reason for their answer. The following themes emerged from an analysis of the "yes" responses: the material was interesting, their English improved, they learned about other cultures, they received strong life messages, they enjoyed the bridging question and bridging essays and the material caused them to think.

The majority of the participants (43) indicated that they enjoyed reading the literature in the Bagrut programme because, as many of them indicated, it caused them to think, improved their English and helped them to learn about other cultures. They also enjoyed the bridging question because*, "the material was interesting*". In addition several participants stated that the literature texts on the programme *"had good and important messages and they were short and to the point".* One participant responded as follows about *The Old Demon* by Pearl S. Buck, *"I learnt how deep a text can be and how much beauty is hidden in the text. I was able to see how man's life can be something meaningful such as the old woman who saves a Japanese man and is willing to kill herself in order to save her town"*.

The themes which emerged from the "no" answers were, the material was not interesting, the material was too challenging and they felt it was too much work. Only a few respondents (7) indicated that they did not enjoy reading the pieces. One of the reasons provided was that they found the programme, *"too challenging".* The workload associated with the literature programme was also mentioned by a few respondents as a reason for not enjoying the programme. One respondent stated in this regard that it was *"too much work with all of the other things we have to do in English".* The reason for not enjoying the reading of the literature pieces which was cited most was that the material was not interesting. One of the participants explained this as follows, *"some I found boring and not on a high enough level".*

The responses to question one show a mostly positive response to the programme for a variety of reasons. For some participants, this was a difficult challenge or something to which they could not relate. The majority however, found the challenge to be enriching and productive in terms of their overall improvement in English and exposing them to other people and cultures and encouraging them to think about a variety of issues.

- **Question two**

Question number two on the opinionnaire asked the participants to name one aspect of the literature programme which they found challenging- this could be from a reading or writing assignment. In addition they were asked to explain why it was challenging. A number of themes emerged from the participants' responses to this question. They included, bridging (that is connecting new ideas to the material), explaining the HOTS and/or literary terms, challenging language, reading and remembering all the pieces, post-reading because it is creative writing, writing so much and LOTS (lower order thinking or basic understanding questions) because they were too simplified.

Bridging essays (making connections)

A number of the participants (15) found the bridging task to be the most challenging aspect of the programme. One of the participants explained this as follows. *"The bridging text and context assignments were challenging for me because it meant applying information from an outside source, onto a story, and making a connection between them which was not always clear".*
Another participant wrote, *"The bridging was quite challenging because sometimes it isn't easy to find the connection between the new text and the (literary) piece."* while yet another one wrote*, "The bridging (was challenging) because it is challenging to connect two things that are different from each other".*

Explaining HOTS and/or literary terms

Some participants (12) felt that explaining the HOTS and literary terms were the most challenging. For example one participant stated, *"The HOTS were a Literature Programme aspect that I found challenging because they were new skills that I just learned to use (for example, comparing and contrasting)".*
Other participants expressed that the HOTS questions were challenging because the participants knew the answer to the question but had a difficult time identifying which HOTS they used to answer it: *"I found the HOTS*

question challenging because most of them I know the answer by myself and it's hard to me to connect it to a thinking skill". Others expressed that the HOTS were challenging *"because it is a lot of writing and a lot of thinking*". Another participant stated*, "Explaining how I used the HOTS was quite hard for me. Most of the time I knew the answer but I wasn't sure how I got to the answer."*

Challenges with understanding the literary text

Some participants (8) found the literary pieces challenging because of the language. One of the participants explained this as follows: *"I found the poems very challenging because poems are never straightforward. With a story, you read and understand, but with a poem, you have to think hard to understand and read between the lines."*

Post-reading task

A few of the participants (7) expressed the feeling that the post-reading task, which is usually a creative writing piece such as writing a speech, letter or diary entry by one of the main characters, was the most challenging aspect of the programme*. "I found the post-reading to be challenging, because it made you get in the character's head and look at life from his point of view".*

Reading the texts and having to remember details for a test

There were also participants (4) who found that reading the literature and having to remember it for a test was difficult. One participant expressed it by writing, *"It was challenging to read and remember all the stories because it's a lot of specifics."*

The number of writing tasks involved in the literature programme

Finally, participants (6) stated that the most challenging aspect of the literature unit was all of the writing. This included the bridging essay, the post-reading task and the literature log questions. This is illustrated by the following responses provided, which is exemplary of the sentiments expressed by the other four respondents; *"The writing was challenging because it needed to take a lot of thought and energy from my brain and it is very tiring"* and *"I found the writing assignments to be challenging. At first I wasn't very good at writing long pieces, but as I practiced I think I've improved that a lot."*

LOTS (lower order thinking skills questions or basic understanding questions) too simplified

Only two participants felt that the LOTS questions were too simplified. As one respondent wrote, *"I wanted to answer the LOTS questions in a deeper way when all they wanted was for me to copy something from the story*".

Both the bridging question and explaining the HOTS are fundamentally what make this programme unique from simply teaching literature in an EFL classroom. The bridging question and the explaining HOTS questions are concerned with the infusion of higher order thinking in the EFL classroom.

From the responses received on question two it can be concluded that the participants recognised the challenges involved in the programme. However, the quantitative and qualitative analysis of the essays showed that the majority of them were able to overcome those challenges and learn to apply higher order thinking to their bridging essays. As can be seen from the discussion of responses to question three, four and five in the following sections, they were also able to describe HOTS and explain how they could be used in other areas.

- **Question three**

Question number three asked the participants if, after completion of the literature Bagrut programme, they were able to identify different HOTS. They were asked to briefly describe one that they had learned. This question allowed the researcher to discern if other HOTS were learned in addition to "making connections" which was measured in the quantitative and qualitative analysis of the bridging essays.

There were some respondents who wrote a HOTS but could not describe it properly, while others said that they already knew these HOTS before the programme started but they did not mention one particular HOTS and define it. The majority of the participants (42) could name a HOTS and describe it using appropriate vocabulary which displayed an understanding of what the skill entailed. The HOTS mentioned by participants could be classified as follows:

Predicting

Predicting was the HOTS mentioned by most of the respondents (13). One participant wrote, *"I learned predicting which is making an educated guess on the outcome of the story either before or during reading the story based on valid information".* Another participant who also wrote about predicting stated, "*Prediction is using facts brought in the story to try to imagine what might happen at the end of the story".*

Explaining cause and effect

Explaining cause and effect was the second most mentioned HOTS. This was mentioned by 11 participants. One participant wrote, *"We learned how to identify things that cause other things and to identify the results".* Another stated, *"We needed to find the reasons why things happen - the cause and find and describe the result - the effect".*

Uncovering motives

Uncovering motives was the third most mentioned HOTS by participants (8). The following response from one of the participants aptly captures the gist of most of the respondents who mentioned this HOTS: *"I connected mostly to the uncovering motives HOTS because I feel it is very interesting to see how many reasons we have to every action we do."*

Compare and contrast

A small number of participants (5) wrote about the HOTS of compare and contrast. One respondent stated that he/she would use compare and contrast HOTS by, *"you look in the story or poem and take two objects or people and compare them - find the differences and what we learn from these differences or similarities".* Another respondent wrote, *"I have learned the HOTS of comparing and contrasting both in a text/story and also in real life. We can take two things or situations, look at the similarities and differences between them which can help us understand or deal with the situation."*

Distinguishing different perspectives

Distinguishing different perspectives was discussed as a HOTS they have learned in the programme by two of the participants. One of them wrote, *"This HOTS is so important because it teaches you to understand different points of views."*

Problem solving

Only one of the respondents mentioned problem solving and referred to it as follows, "*The HOTS of problem solving is where you identify a problem and find the solution".*

Inferring

As was the case with problem solving, only one participant wrote about the HOTS of inferring. He/she stated, *"I am able to identify inferring which is a thinking skill used to read between the lines-to understand ideas that don't appear in the text".*

Writing a HOTS without explaining it

There were some respondents who wrote a HOTS but did not explain it properly (3) and there were also some who said that they already knew these HOTS before the programme started (6) but they did not mention one particular HOTS and define it.

The top four choices, predicting, explaining cause and effect, uncovering motives and compare and contrast are HOTS that participants showed an understanding of in terms of identifying them and describing them. These four are HOTS which were infused into stories and poems the participants read in the programme. For example, they were often asked to predict what would happen next in the story, or to determine what the cause and effect were of a character's actions.

Additional HOTS chosen by the respondents to discuss were uncovering motives of a character, why they did what they did or, comparing and contrasting the stanzas in a poem. These are HOTS which lend themselves to a rich analysis of the literary text. Although many of the participants indicated in their response to question number two (section 5.3.2) that explaining the HOTS was one of the most challenging aspects of this programme the majority of them were able to name a HOTS and describe it using proper terminology.

- **Question four**

Question number four asked the participants if they felt that they would be able to use HOTS in reading a text and to give one example. The majority of the participants (45) were able to specify a HOTS that they use or will use in reading a text. There were, however, within that majority a small minority (3) who mentioned a HOTS but could not explain how they would apply it when reading a text, or who could not supply an example. Five of the participants indicated that they would not be able to use HOTS when reading a text. The themes listed below emerged from an analysis of the responses of participants who were able to define and explain a HOTS when reading a text.

Predicting

Several participants (12) said that they use predicting when reading a text. One participant stated, "*When I start reading a book I will try to predict the outcome of the story".* Another participant wrote*, "I sometimes use predicting when I read books. I use the information that they have already given me and try to predict the rest".* Another one stated, *"I feel I will be able to use the HOTS of predicting when reading a text. I have learned to see that little pieces of information that sometimes seem like they aren't important can help predict and understand what happens later on in the story/poem".*

Uncovering motives

Some participants (9) stated that uncovering motives was a HOTS they use or will use when reading. The following two quotes demonstrate most of the participants' opinions: *"Usually it is impossible to understand the piece without the HOTS. Learning 'The Road Not Taken' without uncovering the poet's motives is the right way to study literature"* and *"If I'm reading a text about a decision the character makes I would be able to use uncovering motives in order to figure out why such a decision was made".*

Explaining cause and effect

The third most mentioned HOTS that participants wrote (6) that they could apply to reading was cause and effect. One participant summed it up by saying, *"I will use cause and effect. For example I'll identify the cause for something that happened in the story and that way understanding the results will be easier."* Another participant stated*, "I now think that I will be able to read what happens in the story and find a cause or reason why things happen".* Another participant agreed*, "I will use the HOTS of cause and effect when reading a text. I can see the result of something and then discover what the cause of this action is".*

Distinguishing different perspectives

Four participants said that they would use the HOTS of distinguishing different perspectives when reading. As one participant stated, which expressed similar thoughts to what the other three wrote, *"I would use distinguishing different perspectives to see the different viewpoints of each character".*

Explaining patterns

Two participants stated that they would use the HOTS of explaining patterns when reading a text. One participant wrote, *"I will try to use explaining patterns by trying to see what the pattern of behavior a character has and how it could change during the story's plot line*."

Evaluating or making judgements

Only one participant said that he/she uses evaluating when reading a text, "*When I read a text I will be able to use the HOTS of evaluating and I'll be able to make judgments about different aspects of the text, like the actions of the characters".*

Some of the participants were not able to explain how one of the HOTS which they learned could be used when reading. It is possible that these respondents automatically use higher order thinking when reading but are unaware of the use of the skill or they were unable to specify and explain what skills they use when reading a text. As quoted previously in question two on one of the challenging aspects of the programme, this participant explained the difficulty in explaining HOTS*, "I found the HOTS question challenging because most of them I know the answer by myself and it's hard to me to connect it to a thinking skill".*

The three HOTS mentioned most often by participants and which could also be explained, show that the programme was especially successful in imparting an understanding of predicting, uncovering motives and explaining cause and effect. These top three answers also appeared as the most frequently given answers in question three when participants were asked to identify and describe specific HOTS. In addition, the HOTS of "making connections" were mentioned by some of the participants, which showed this skill was also one that they learned and could apply to their reading. This is the skill which they practiced throughout the literature programme when reading and answering the bridging question.

From the responses to question four it could be concluded that participants are successful in defining a HOTS and understand how it could apply to their reading. It also seems that they see the efficacy in reading a text using the HOTS which they learned because it will help them interpret the text in a more meaningful way.

- **Question five**

Question number five asked the participants if they felt that they would be able to use HOTS when writing essays. They needed to provide an example that showed that they could explain the HOTS chosen and how it could apply to their writing. The majority of the participants (33) were able to provide an

example which showed how HOTS could apply to writing essays. The following themes emerged from an analysis of their responses:

Explaining cause and effect

The HOTS of explaining cause and effect, which is the ability to identify the reasons why things happen and to explain the results, was mentioned by nine participants as one that could be used in writing essays. One participant wrote*, "Cause and effect could be used in my essay to explain why something happened and what the results are".* Another stated*, "I think I will be able to use cause and effect, creating reasons (causes) for certain effects (results)"*. Yet another commented, *"I think that I will be able to use cause and effect in an essay and show how the cause causes the result or effect of something I'm writing about".* Another one explained*, "I think that I can for example while writing about a turn of events, I would use cause and effect to explain it".*

Compare and contrast

Compare and contrast was the second most mentioned (8) HOTS that participants said they could use in writing essays. One participant expressed himself/herself by saying, *"I write essays which compare and contrast ideas to see what the same is and what is different."* Still another wrote, *"I think that comparing and contrasting will help me to find and show differences between things in the best way in my writing".* One claimed*, "I could write using the HOTS of comparing and contrast when I compare two different characters and their actions".*

Distinguishing different perspectives

Four participants wrote that they could use the HOTS of distinguishing different perspectives when writing an essay. One participant stated*, "Yes, I could use distinguishing different perspectives to right my essay by adding more people's views and discussing them in my essay".*

Problem solving

Four participants indicated that they now knew how to write an essay using the HOTS of problem solving. One stated, "*I feel I'll be able to use HOTS in writing essays, for example, problem solving, looking at the struggle between two forces in a conflict and writing my opinion on how to solve the problem".* Another wrote, *"I will describe a problem in my essay and I will show how to find the solution for it".*

Identifying parts and whole

Four participants answered that they could use identifying parts and whole when writing an essay. This was best explained by the following response received from one of the respondents: *"In my writing I can use the HOTS of identifying parts and whole. When writing we need to define different parts of the general idea or group. Using the HOTS of identifying parts of a whole can help us see the bigger picture and all of the different pieces that build the whole idea".*

Generating possibilities

Two participants chose to write about generating possibilities as a HOTS that they could use when writing an essay. One stated, *"Yes, I can use generating posibillities when writing an effective essay to give different ideas or sugestions for a situation"*. The other one wrote, *"Yes, I will use generating possibilities by thinking and writing different ways to look at anything we can see".*

Making connections

Two respondents answered that they could use making connections in their writing an essay. One gave the example of the bridging essays that he wrote and another stated*, "I'm sure I can use making connections HOTS in my*

writing, to connect different ideas or different pieces of information to what I am writing".

Five respondents mentioned a HOTS and stated affirmatively that they would be able to use HOTS in writing essays but did not write an example explaining how, six respondents wrote that they would be able to use HOTS in their writing but did not mention a HOTS or explain how they would use HOTS and six respondents answered "no" that they would not be able to use HOTS when writing an essay.

From the participants' responses to question five on the opinionnaire it can be concluded that the majority of participants were successful in understanding how HOTS could apply to their writing and that they understand the efficacy of integrating HOTS in their writing.

5.3.3 Summary of qualitative data analysis

The qualitative part of this research asked each of the participants, whose essays were marked in the quantitative study, to answer five questions on an opinionnaire. Those questions included their opinion of the literature programme, whether they enjoyed learning literature with HOTS, what aspects of the programme they found challenging, whether they could now identify different types of HOTS and explain what they are and whether they could now apply HOTS to their reading and writing.

The majority of the participants responded that they enjoyed learning HOTS as part of the literature programme. Almost half of the participants expressed that the writing was the most challenging part of the programme and several others revealed that explaining the HOTS were the most demanding aspect of the programme.

Most of the respondents were able to identify and describe, using appropriate vocabulary, a HOTS which they had learned during their two years in the programme. In addition, the majority of the participants could define a HOTS

and specify how it could be applied to their reading (section 5.3.2). Almost all of the participants could define a HOTS and show how they could employ it in their writing (section 5.3.2).

The overwhelming majority of participants' answers on the questions of the opinionnaire expressed a confidence in understanding and applying HOTS. These questions encouraged the participants to reflect upon their learning and to consider how these skills could be transferred to new situations.

5.3.4 Inter-coder reliability

The data analysis for the opinionnaires showed a strong consistency in inter-coder reliability. The high level of inter-coder reliability was due to the fact that the coders discussed their results with each other throughout the coding of the opinionnaires. This process was essential to coming to a consensus about the interpretation of some of the participants' answers on the opinionnaires and the themes which were revealed.

Coding of the opinionnaire questions (section 4.7.3.3) was a cyclical process that involved reading the answers on the opinionnaires writing notes, discussing the answers between the two coders, reviewing the semantic connections of the respondents' answers, segmenting the responses and uncovering themes that emerged from them. The two coders met on several occasions to ensure that there was agreement on the meaning of each answer to each question.

Serious discussions ensued especially with regard to the examples that participants provided. The question was whether a particular example in fact displayed an understanding of the HOTS the respondent mentioned in his/her answer. The question was resolved by determining that an example was valid if the respondent could provide a specific example along with their answer. In other words, just to write, *"I could use compare and contrast when reading a story",* was not sufficient. The answer had to include a specific example, *"I could use compare and contrast when reading about two characters in a story*

and comparing how they reacted to a situation they met in the story". The second example clearly shows that the participant understood how to apply the HOTS of compare and contrast to a literary text.

The master coding sheet was revised often until it covered all of the answers that participants wrote. Disagreements were rare; however, when they occurred they were resolved by a thorough discussion of the opposing opinions. Each coder explained his/her reasoning until one or the other was convinced of the logic of the argument.

5.4 Mixed Method Data Analysis

In table 4.1 (section 4.3.2.3) four common types of design for mixed methods are displayed. The mixed method approach provided the researcher with a broader set of analysis tools which were required to answer the research questions studied. One of the four common types of design for mixed methods research is triangulation (table 4.1). Triangulation is when the quantitative and qualitative components are concomitant and are used to examine the same phenomenon as was done in this mixed methods study.

The main objective of this study was to determine what the pertinent challenges and key guidelines are in introducing and assessing students' higher order thinking skills in a literature based English foreign language curriculum (section 1.6). A sub-topic was to determine to what extent the 10th and 11th grade EFL Israeli students' learned to apply one of the HOTS (making connections) to their bridging essays. To determine the answer to this sub-question quantitative and qualitative data were analysed together (section 4.7) as bridging essays were quantitatively scored and also qualitatively reviewed in order to determine the level of improvement in writing with HOTS.

In addition, the lowest quantitative scores on the third set of bridging essays were compared to the last two answers on the opinionnaire because question four related to reading with HOTS and question five related to writing with

HOTS. This mixed method data analysis helped to answer another sub-question of the study, namely how accurately could participants demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply those in the areas of reading and writing (section 1.6).

5.4.1 Critical and interpretative analysis of eighteen bridging essays

The qualitative analysis of the bridging essays helped to clarify whether or not participants learned to write a bridging essay with the HOTS of “making connections”. The first set of essays showed that participants were not able to use the HOTS of “making connections” because they were not able to support a connection between the literary text and the unfamiliar information with an example from the literary text. Also, they had difficulty writing a coherent bridging essay with correct grammatical structures and spelling. By the third set of essays the majority of participants had improved in their ability to use the HOTS of “making connections” in their bridging essays, they were able to support the connection with a suitable example from the literary text studied in class and they did show improvement in writing a coherent bridging essay. Examples are provided in the section below.

5.4.1.1 Analysis of bridging essays that showed the most improvement

Participants who showed the most progress from their first essay to their third essays were numbers, 3, 19 and 49 (appendix I) An analysis of their essays showed weak first essays in the areas of applying the HOTS of “making connections”. If they did make a connection between the unfamiliar information and the literary text they often could not support it with a strong example and the writing of the bridging essay was not coherent. By their third bridging essay they were able to explain the new information, make a clear connection to the literary piece and support it with an example. In addition, they wrote a coherent bridging essay which included a conclusion that further revealed their ability to make a strong connection between the new information and the literary text.

Participant 3 Essay Number one

Question:	**"I would define, in brief, the poetry of words as the rhythmical creation of beauty." Edgar Allan Poe** **How does this quotation connect to the poem *The Bells* by Edgar Allan Poe?**
Answer:	*Edgar Allan Poe created his poem with rhythm of a heart beat and that is how the readers read it- duh dum duh dum. Through the rhythm he shows the pint in his poem, the heart beat through all the circle of life, allways moving on. The rhythm together creates the beauty in the poem.*

Participant 3 received an average score from all three markers of 8.3 points out of 70 in the area of utilising HOTS (categories 2, 3, & 4 on the rubric appendix E). In participant 3's first essay, he/she wrote about the rhythm but didn't relate it to the rhyme scheme by explaining how the rhyme scheme/rhythm of the poem evokes images and feelings. The participant wrote, *"Through the rhythm he shows the pint in his poem, the heart beat through all the circle of life".* This answer does not show an understanding of the poem, the rhyme scheme or the quotation. In addition, an example is not provided to support the connection. Some points however were given for *"The rhythm together creates the beauty in the poem"* and language use/mechanics. What is evident from participant number three's first essay is the inability to comprehend the unfamiliar piece of information, in this case the quotation. Therefore, the participant could not "make the connection" to the poem studied in class.

In the area of content/organisation and language use/mechanics (1 & 5 on the rubric- appendix E) participant three received an average score from all three markers of 25.6 points out of 30. The content is understood, the text is written

in the pupil's own words. There is a spelling mistake (pint instead of point) but connectors and punctuation are correct. There is no evidence of advanced language structures, such as progressive, perfect tense, conditional or passive.

Participant 3 Essay Number three

Question:	**"It is of the greatest importance that the peoples of the earth learn to understand each other as individuals across distances and frontiers." Remarks made by Pearl S. Buck at the ceremony awarding her the 1938 Nobel Prize in Literature.** **How does this quotation connect to the story *The Old Demon* by Pearl S. Buck?**
Answer:	*Pearl S. Buck says in the text given that one of the most important thing in life is to see and understand people as individuals, whoever they are. Even though a war was going on between China and Japan Mrs. Wang decided to save the Japanese soldiers life. As Buck says, seeing a person as an individual looking beyond where he comes from looking at him as him himself, as an individual and as just being another human being, just like everyone else that is the importance. The soldiers come to Mrs. Wang, and tell her to stop taking care of that enemy But Mrs. Wang doesn't see him as her enemy, she sees him as a young man, who is injured and alone. She, being a caring, helpful woman, decides to give the poor young man some bread and when she sees he's dead she doesn't give up and carries on taking care of him. Not as a soldier, but just as another human being.* *In conclusion, Pearl S. Buck and Mrs. Wang both teach us the importance of seeing a person for who he is, not for the place he came from and the people he is with. And if we do manage to do that our world will be a much better place.*

In the HOTS categories on the third essay participant three received 69.3 points out of 70. In contrast to the first very short and incoherent bridging essay, the third essay written by participant three is more comprehensive and shows a clear understanding of the new information and a strong ability to use the HOTS of “making connections” between the literary text and the unfamiliar information. In addition, participant 3 provides a relevant example from the literary text which supports the connection and develops an overall answer that is coherent and well written. For example, he/she immediately made the connection to the story, “even though a war was going on between China and Japan Mrs. Wang decided to save the Japanese soldiers life”.

Participant 3 gave specific examples to support the connection, *“the Chinese soldiers come to Mrs. Wang and tell her to stop taking care of that enemy but Mrs. Wang doesn’t see him as her enemy, she sees him as a young man, who is injured and alone”.* The conclusion is excellent as it incorporated the idea in the quotation as well as an example of the character to support the connection, *“In conclusion, Pearl S. Buck and Mrs. Wang both teach us the importance of seeing a person for who he is, not for the place he came from and the people he is with.”*

In the area of language participant three received 29.3 points out of 30 on the third essay. The content is well organised and easily understood. Also there is evidence of correct use of some advanced language structures and rich vocabulary (“*She, being a caring, helpful woman, decides to give the poor young man some bread and when she sees he’s dead she doesn’t give up and carries on taking care of him.”)*

Participant 19 Essay Number one

Question:	**"I would define, in brief, the poetry of words as the rhythmical creation of beauty." Edgar Allan Poe** **How does this quotation connect to the poem *The Bells* by Edgar Allan Poe?**
Answer:	*Edgar Allan Poe said that poetry is like the rhythmical creation of beauty. Poe added a rhyme scheme to the poem "The Bells" which connects to what he said. He's comparing poetry to beauty.*

Participant 19 received an average score of 17.3 points out of 70 on the HOTS categories. In the first essay, which is a very short answer, he/she repeated the quotation but did not explain the meaning of the quotation in his/her own words. This was often the case in the first essays when the participants did not realise that showing an understanding of the unfamiliar information meant that they had to rephrase it in their own words. As is the case with the first essay written by participant 3, this first essay also shows that the participant didn't understand the unfamiliar text, therefore was not able to connect it to the literary text, support a connection and write an appropriate example.

In the area of content and language participant 19 received an average score of 21.6 points out of 30. The text and context was clear but was not written in the participant's own words as he/she just copied parts of the quotation. There was no evidence of advanced language structure or rich vocabulary, but there were also no spelling mistakes or grammatical errors.

Participant 19 Essay Number three

Question:	**"It is of the greatest importance that the peoples of the earth learn to understand each other as individuals across distances and frontiers." Remarks made by Pearl S. Buck at the ceremony awarding her the 1938 Nobel Prize in Literature.** **How does this quotation connect to the story, *The Old Demon* by Pearl S. Buck?**
Answer:	*This text says that it's extremely important for different people from around the world to understand each other as individuals and human beings and not to judge, and to have mercy on people.* *This text connects to our story because we see that this is exactly what Mrs. Wang does to the wounded Japanese soldier- she starts treating him and when she finds out that he's Japanese, she continues to treat him and feed him even though she was against his nation. She understood him as an individual and felt bad for him and that is exactly the message that Pearl Buck said in the previous text. And that is how the previous text connects to the story "The Old Demon".* *For a conclusion we see that Pearl Buck thought that we shuld treat and understand different people from us as individuals- and not to judge them or predict things about them because they are their own individual and unique person- even if in general you are against his/her nation, they can always have their own beliefs.*

Participant 19 received an average score of 66.6 on the HOTS categories on the third essay which reveals a clear understanding of the unfamiliar information and a strong ability to make a connection to the literary text and provide an example to support the connection. The essay is also more comprehensive and much longer than the first essay. Furthermore, the

conclusion which is reached in the bridging essay reinforces the connection and provides a summary of the argument made in the beginning of the bridging essay in terms of the connection*, "we see that Pearl Buck thought that we should treat and understand different people from us as individuals and not to judge them or predict things about them because they are their own individual and unique person…."*

On the language categories participant 19 received 28.6 point out of 30. This third essay is well organised, easily understood, there is evidence of rich vocabulary *("Buck thought that we shuld treat and understand different people from us as individuals - and not to judge them or predict things about them because they are their own individual and unique person")*. There are a few spelling and grammar mistakes ("shuld" instead of "should" and felt bad for him instead of felt badly for him).

Participant 49 Essay Number one

Question:	**"We have two lives, the one we learn with and the life we live after that." Bernard Malamud** **How does this quotation connect to the story*, A Summer's Reading* by Bernard Malamud?**
Answer:	*That sentience of Bernard Malamud says that youre life is built from two parts the first is when you study and the second is after you finish study I think its connects to the story beause the story is only on a small part of his life and according that sentience is really important that term of his life and its show how he change his first life from top to top from being a boy that cant read and was a bad boy to be someone that people like and this sentience of Bernard Malamud explain why its so important this time of life!! And why all the story is in a small term of his life.*

In his/her first essay participant 49 received 30.3 points out of 70 in the HOTS categories. He/she did explain the quotation but was not able to clearly explain the connection to the story. He/she writes*, "its show how he change his first life from top to top from being a boy that cant read and was a bad boy to be someone that people like…"* This reveals that the participant did not understand that this had nothing to do with being a "bad boy". The main character could read; he dropped out of school for a variety of reasons. His choice at the end of the story was to choose to begin to read and learn on his own.

In the area of content and language participant 49 received an average of 14.3 out of 30 points. The content was not easily understood and there were several spelling errors ("youre","beause","cant", "its") as well as grammatical errors ("*its show how he change*"). There is a passive form used ("life is built from") which shows evidence of some advanced language structure but the piece is written as almost one run-on sentence.

Participant 49 Essay Number three

Question:	**"If we only had in America today more teachers who could teach beyond-and still include- the required subject matter, teachers who could inject beauty into their teaching, we could change the face of America. Inspirational teachers can have a profound influence upon the youth who will later occupy state and national positions and influence a nation." (Page 177 in To Teach to Love by Jesse Stuart)** **Make a connection between the above information and the story, *The Split Cherry Tree.***
Answer:	*In the bridging text we see that a good teacher is a man that can be more then just a teacher he says that if all the teacher's will be like that so the students will be much better. Also in the story of "The Split Cherry tree" we see how the teacher is more then just a teacher also when he agree to pay instead of him the dollar and when he behave so nice to Dave's father and that Dave hope that Pa will see that the professor is a nice man. And also in the text we see that they need to "inject beauty in their teaching" and even Daves Pa enjoys also in the professors lesson and lessons in life.*

In participant 49's third bridging essay he/she received an average of 63.3 points on the HOTS categories. Participant 49 is able to explain the meaning of the unfamiliar passage, he/she makes the connection to the story and provides three examples *("we see how the teacher is more then just a teacher.., he agree to pay instead of him the dollar and when he behave so nice to Dave's father*") to support the connection made. There is no concluding sentence in this bridging essay; however the participant shows that he/she can utilise the HOTS of "making connections" between the text and the unfamiliar information.

Although there are still issues with the syntax and grammar in this third bridging essay (“when he agree”, “Dave hope”), he/she received 25 points out of 30 on the content and language categories. The reason is, the text is well organised, the content is easily understood and written in the pupil’s own words.

5.4.1.2 Analysis of bridging essays that showed average improvement

Participants’ essays which revealed average performance over the two year period (numbers 6, 29 and 38) showed that they understood from the first essay the general structure of the bridging essay but were not proficient in including all of the required information in their answers. They were able to explain the unfamiliar information and the text and make a connection; however, the connection was often weak and not accompanied by a strong example to support their connection.

Participant 6 Essay Number one

Question:	**“I would define, in brief, the poetry of words as the rhythmical creation of beauty.” Edgar Allan Poe** **How does this quotation connect to the poem *The Bells* by Edgar Allan Poe?**
Answer:	*Edger Allan Poe defines his poem, to rhythmical creation of Beauty., wich shows the importance of the rhythm and the beat in the poem. It gives it a prettier and more elegant way to read it. His value about the poem, proves why he chose to build the poem from rhymes, to make the poem sound more musicle, and the beat of the poem is very good. For example- poe added many rymes to the bells, to get the beat and the mood of the scene hes referring to like: birth, marriage and more.*

Participant 6 received an average score of 52.6 points out of 70 in the HOTS categories on the first bridging essay. The participant does partially explain the meaning of the quotation*, "wich shows the importance of the rhythm and the beat in the poem".* However, the connection to the poem is weak, *"proves why he chose to build the poem from rhymes"*. Also, the example is not specific and does not relate to the quotation but more to the symbolism of the bells in two of the stanzas.

In the categories of content and language participant 6 received an average score of 27.3 points out of 30. The content is easily understood and fairly well organised. There is no evidence of advanced language structure but there is some rich vocabulary ("elegant", "structure", "mood of the scene hes referring to"). There are frequent errors of spelling but hardly any errors in punctuation.

Participant 6 Essay Number three

Question:	**"It is of the greatest importance that the peoples of the earth learn to understand each other as individuals across distances and frontiers." Remarks made by Pearl S. Buck at the ceremony awarding her the 1938 Nobel Prize in Literature.** **How does this quotation connect to the story, *The Old Demon* by Pearl S. Buck?**
Answer:	*This quotation talks about the importans of people to care about one with eachother and have a good connection of understanding and caring individually for the surrounding even if geography they are far from eachother or not.* *This could connect very well to the story because in the story we see that the war Japan opend against China brought to hatriad of the chinease the Japanese, do to the hobbibal way they conquered them. Alsi, individually, the chinease soldiers were determind to kill every Japanease sole and defile the body. Compaired to them, mrs Wang has persoenally moral act towds a human being, even thow he's the Japanese soldier politically. We should learn from her, that no matter what, a person is a person.* *In conclution, we should learn from mrs. Wang to treat every sole, as a person, no matter what side he is, politically. It's hard at first, but if people at the world would help eachother, no matter what, peasce would come, and the number of the wars would vanish.*

In participant 6's third essay he/she receives an average score of 63 points out of 70 in the HOTS categories. One problem with this bridging essay is that participant 6 does not grasp that the purpose of the bridging essay is to connect the unfamiliar information to the literary text and not to historical information. However, he/she does give an example from the story that refers to the unfamiliar information but does not support the connection made since the connection made was not based on the literary text, *"in the story we see*

that the war Japan opend against China brought to hatriad of the chinease the Japanese, do to the hobbibal way they conquered them", (this is not explained in the story). There is a concluding sentence that does show that the participant could connect the main idea of the unfamiliar information with the story. "*In conclution, we should learn from mrs. Wang to treat every sole, as a person, no matter what side he is, politically. It's hard at first..*".

In the area of content and language participant 6 received an average score of 23 points out of 30. This went down from 27.3 in the first essay. The reason was because the grammar and sentence structure made it sometimes difficult to discern the point made. For example he/she writes, *"This quotation talks about the importans of people to care about one with eachother and have a good connection of understanding and caring individually for the surrounding even if geography they are far from eachother or not".* There are many spelling mistakes in this essay although the participant does use some rich vocabulary ("determined", "compared", "horrible").

Participant 29 Essay Number one

Question:	**Most of Bernard Malamud's stories depict the search for hope and meaning within the bleak enclosures of poor urban settings. Writing in the second half of the twentieth century, Malamud was well aware of the social problems of his day, but he often depicted love as redemptive and sacrifice as uplifting.** **Explain how this information connects to the story*, A Summer's Reading*.**
Answer:	*The text say that Bernard wrote a story about a poor neighborhood and his story gave people hope. In the story summer's reading it talks about a poor famally. It also talk about family in the 20 century just like the books that Bernard wrote. I know that it was the 20 century because Geroge sister take the subway everydat and they saying that he have a poor family. For conclution the story connect to the text because summer reading its just like the stories that Bernard like to wrote.*

Participant 29 received an average score of 32.3 points out of 70 in the HOTS categories on the first bridging essay. He/she showed a general understanding of the format of the bridging essay and a partial understanding of the unfamiliar information, "*The text say that Bernard wrote a story about a poor neighborhood and his story gave people hope."* In addition, the connection to the story recognises that the story is about a poor family but rather than focus on bringing an example of how we know that the family is poor, the participant gives an example of the time period and the subway," *I know that it was the 20 century because Geroge sister take the subway everydat"*. The participant knows that a concluding sentence is part of the bridging essay but does not write a sentence that emphasises the connection made between the specific literary text *(A Summer's Reading)* and the unfamiliar information presented.

In the area of content and language, participant 29 received an average score of 18.3 points out of 30 on the first essay. The text is easily understood, however there are frequent errors of spelling and grammar (“famally”, “everydat”, “conclution” and “George sister take”, “they saying”, “Bernard like to wrote”).

Participant 29 Essay Number three

Question:	**“What do we live for, if it is not to make life less difficult for each other?” George Eliot** **How does this quotation connect to the poem, *Count That Day Lost* by George Eliot?**
Answer:	*In the text abovuv they telling us that the reson that we live is to make other people life nicer. In the poem they telling us that you can count youre day well spent only if you make someone happy and if we don’t why should we live for? (“worse than lost”).*

By the third essay participant 29 received an average score of 55.3 points out of 70 in the HOTS categories. He/she wrote a very short bridging essay that included most of the essential elements of the bridging answer (there is no concluding sentence). Even though it was short it was clear that the participant understood that it was necessary to explain the unfamiliar information (the quotation in this case), connect it to the literary text and bring an example from the literary text to support that connection.

In the area of content and language participant 29 received an average score of 22.3 points out of 30 points. There was some improvement in this area from the first (18.3) to the third bridging essay. Again, the content is easily understood and it is organised well in terms of how the bridging essay should be written; however, there are still issues with spelling and grammar (“abovuy”, “reson”, “youre” , “they telling us”, “to make other people life

nicer").By the third essay participant 29 showed improvement in comprehension of the bridging question and essay but still did not master writing an excellent bridging essay.

Participant 38 Essay Number one

Question:	**"We have two lives, the one we learn with and the life we live after that." Bernard Malamud** **How does this quotation connect to the story*, A Summer's Reading*?**
Answer:	*The new information tells us in what the writer believes. We see that the writer believes in education, which lead to success. The new information is connected to the story by this that also George, at the end, understand that his life will become to success only if he will start to get some education and this is what George do at the end, by the books. This is how the new information connect to the story.*

Participant 38 received a score of 33.6 points out of 70 on the HOTS categories. This first essay does not show that he/she could fully explain the unfamiliar information or the connection to the story. In addition there is misinformation about the story, *"this is what George do at the end, by the books".* At the end of the actual story George goes to the library to read books not to buy them. Furthermore, the concluding sentence*, "This is how the new information connect to the story"* is not a sufficient conclusion which explains the connection, most likely because the participant could not make the connection between the text and quotation in the first place.

In the area of content and language participant 38 received an average score of 13.3 points out of 30. Although the content is fairly will organised and understood, there is consistent incorrect grammar structures ("which lead to

success", "George, at the end, understand" and "how the new information connect to the story").

Participant 38 Essay Number three

Question:	**"If we only had in America today more teachers who could teach beyond-and still include- the required subject matter, teachers who could inject beauty into their teaching, we could change the face of America. Inspirational teachers can have a profound influence upon the youth who will later occupy state and national positions and influence a nation" (Page 177 in To Teach to Love by Jesse Stuart).** **How does this quotation connect to the story, *The Split Cherry Tree*?**
Answer:	*The new information connects to the new story by this it's talking about inspirational teachers and prof. Herbert is a inspirational teacher. We see it when Pa is so amazed when Prof. Herbert make him see the germs. We also saw it in Dave's opinion about him, when he think he's a good guy.*

By the third essay participant 38 received a score of 56 points out of 70 on the HOTS categories. He/she was still writing bridging essays which were short, however, the information written met the criteria for the bridging essay. The new information was explained, the connection was made to the story and an example from the story was brought. He/she wrote, *"The new information connects to the new story by this it's talking about inspirational teachers and prof. Herbert is a inspirational teacher. We see it when Pa is so amazed when Prof. Herbert make him see the germs".* There is no concluding sentence which emphasises the connection between the text and unfamiliar information in this bridging essay.

In terms of content and language participant 38's third essay showed an increase from 13.3 to 29 points out of 30. This bridging essay is well organised and easily understood. Although there are still grammatical errors ("Prof. Herbert make him see", "he think") we see some rich vocabulary, ("inspirational", "amazed"). The participant also uses the progressive tense language structure correctly ("it's talking about inspirational teachers").

5.4.1.3 Analysis of bridging essays that showed the least improvement

Participants' essays which showed the least increase in performance over the two year period (numbers 12, 39 and 44) did not start out as weak as those who showed the best performance but they made only minimal or no progress over the two years. In some instances the participants had difficulty understanding the unfamiliar information and explaining it. For example, participants would often copy the quotation given without explaining it in their own words.

In the first essays the connections made between the unfamiliar information and the literary texts were mostly weak and it was clear that the participants didn't understand the bridging question or the literary text well.

There was however some minor improvement by the third set of essays. As can be seen from the discussion below, participants were beginning to understand the HOTS' concept of "making connections" in their third essay, but were not always able to make those connections between the unfamiliar information and the literary text. The participants continued to show a weak understanding of the meaning of the unfamiliar text and sometimes a cursory comprehension of the literary text, so they were not able to provide a strong example to support their "connection" to the literary text.

Participant 12 Essay Number one

Question:	**"I would define, in brief, the poetry of words as the rhythmical creation of beauty." Edgar Allan Poe** **How does this quotation connect to the poem *The Bells* by Edgar Allan Poe?**
Answer:	*Edgar Allen Poe defines poetry as rhythmical creation of beauty. It connects to his poem "The Bells" because he uses poetry to describe the beauty of the cycle of life, within his poem. The literary term rhyme scheme contributes a beat to the poem. The rhyme scheme adds rhythmical beauty to the poem as well as makes reading it more enjoyable. For example the rhyme scheme built a tense feeling inside of me when I read the poem. Poe uses rhyme scheme to create the beauty of poetry in his poem, "The Bells", which together creates the beauty of life in the poem.*

Participant 12 received 48.3 points out of 70 on the HOTS categories for this first essay. The participant shows an understanding of the structure of the bridging essay, however, he/she doesn't really explain the quotation in his/her words. The explanation, *"…'The Bells' because he uses poetry to describe the beauty of the cycle of life, within his poem*", doesn't show an understanding of the concept of "rhythmical creation of beauty". The participant simply states that Poe uses poetry to describe the beauty of the cycle of life without dealing with the literary term of rhyme scheme. Because the understanding of the quotation is not strong there is no conclusion which emphasises the connection between the text and the unfamiliar information. The participant does however describe the importance of the beat to the poem and describe how the rhyme scheme *"built a tense feeling inside of me when I read the poem".*

In terms of the content and language, the score on 12's first essay was 29 points out of 30. The content is organised, easily understood and there is

evidence of rich vocabulary (“as well as”, “cycle of life”, “literary term”). There are also hardly any errors of word order, connectors, prepositions, spelling and grammar.

Participant 12 Essay Number three

Question:	**“It is of the greatest importance that the peoples of the earth learn to understand each other as individuals across distances and frontiers.” Remarks made by Pearl S. Buck at the ceremony awarding her the 1938 Nobel Prize in Literature.** **How does this quotation connect to the story, *The Old Demon* by Pearl S. Buck?**
Answer:	*Pearl s. Buck in her quote says that it is very important to understand all the different types of people in the world. Every person is individuls and has his or her own looks and traits. This information connects to the story “The Old Demon” because it critisises Mrs. Wang and her village. For example, Mrs. Wang thinks that the Japanese look very different then the Chinese and shi is sure that she’ll recegnize one when she sees one. Turns out that the Japanese look very alike to the Chinese, which surprised Mrs. Wang. In conclusion the new information comes to teach us that we need to know and understand different people, therefor it critisises Mrs. Wang.*

In this bridging essay the participant is focused on a critique of the main character, Mrs. Wang because of her prejudice towards the Japanese, “*the information connects to the story because in criticises Mrs. Wang and her village. For example, Mrs. Wang thinks that the Japanese look very different than the Chinese”*. The participant misses the point of the connection and the story. He/she does explain the quotation which is repeated in the conclusion, *“In conclusion the new information comes to teach us that we need to know and understand different people”.* In addition, this essay lacks a concluding

sentence, however, in other aspects it does follow the format for writing the bridging essay.

In the categories of content and language participant 12's third bridging essay decreased from 29 points to 25.3 points. The text is written in the participants' own words and is easily understood, however there is no evidence of advanced language structures and there are several errors in spelling and grammar which are underlined in the answer. There is some use of rich vocabulary ("traits", "criticises", "recognise") although these are mostly misspelled.

Participant 39 Essay Number one

Question:	**"We have two lives, the one we learn with and the life we live after that." Bernard Malamud** **How does this quotation connect to the story, *A Summer's Reading* by Bernard Malamud?**
Answer:	*At this quotation we see that we have two lives, the one we learn with, and the life we live after that. That mean that we have two parts to our life.* *It's connectes to the story "A summer's Reading", because at the story we see that George have a two parts in his life, the part that he's learned from his mistake and the part that it after.* *In the story George doesn't go to school, he had poor, and he's life look like a bad and depressed life. After time he met Mr. C and learned from him, that its not true to do what is Mr. C. do at his life. And then George start a "real" life, that he doing something on his life.* *We can see that realy on life we have to lives, the one we learn from mistakes, and the life after that, when George was a child he had a badly life. He was poor, and doesn't go to school, and doesn't do anythings on his life, and after he doesn't do anythings on his life he start to live the life!*

Participant 39 received 39.3 points out of 70 in the HOTS categories. In this first bridging essay the quotation is repeated but not explained well, *"At this quotation we see that we have two lives, the one we learn with, and the life we live after that."* Once again the bridging essay revealed a lack of being able to show a clear understanding of the unfamiliar information. The connection made does make sense in that participant 39 writes, *It's connectes to the story "A summer's Reading", because at the story we see that George have a two parts in his life, the part that he's learned from his mistake and the*

part that it after. In the categories of content and language participant 39 received 22.3 points out of 30. The content is sometimes difficult to follow, *"George was a child he had a badly life. He was poor, and doesn't go to school, and doesn't do anythings on his life, and after he doesn't do anythings on his life he start to live the life".* This also shows the participants' mistakes in grammar and spelling.

Participant 39 Essay Number three

Question:	**"If we only had in America today more teachers who could teach beyond-and still include- the required subject matter, teachers who could inject beauty into their teaching, we could change the face of America. Inspirational teachers can have a profound influence upon the youth who will later occupy state and national positions and influence a nation." (Page 177 in *To Teach to Love* by Jesse Stuart)** **How does this quotation connect to *The Split Cherry Tree*?**
Answer:	*The information told that if the teachers teach beyond and include the required subject matter, they will inject beauty into their teaching. And then the studnets can influence a nation and change the future of America. At the story "The Split Cherry tree", we can see tha Pa wasn't educated because his teachers when he was at high school, and Dave's teachers are very good teachers and they include the required subject matter, And we see that is important How the teachers teaching their studnets. It's can change the face of the state. Inclusn: The way that the teachers are teaching their studnets is very important, The teachers very influence upon the youth who will later occupy state and national positions and influence a nation!*

On participant 39's third essay he/she received an average of 51 points out of 70 on the HOTS categories. He/she is still repeating the information rather than writing it in his/her own words, however the connection made is valid and there is a good conclusion,*" Inclusn: The way that the teachers are teaching their studnets is very important. The teachers very influence upon the youth who will later occupy state and national positions and influence a nation!"*

Participant 39 shows an inability to explain the unfamiliar text in his/her own words but it is evident that he/she understands enough of its meaning to make a connection between the unfamiliar text and the literary text. In addition, because the participant doesn't fully understand the new information there is not a strong example from the literary text to support the "connection" made.

On the content and language categories 39 received an average of 22.3 from the three markers, the same as on the first essay. The participant lost points for grammar and spelling. For example, he/she writes, "*The teachers very influence upon the youth"* and the word conclusion ("inclusn") is spelled incorrectly as is the word student ("studnets") a few times.

Participant 44 Essay Number one

Question:	**"We have two lives, the one we learn with and the life we live after that." Bernard Malamud** **How does this quotation connect to the story, *A Summer's Reading* by Bernard Malamud?**
Answer:	*In the story there is to things a livf were a person gets educated or a person that can't have education like Goerge or Mr. Catanzara and that is the life we learn with in order to get to the life we live after. That in our life you have ups and downs like with George he didn't have any education so he wanted to read but it was a down time for him so in order to get to an up time in his life he got help from Mr Cattenzara that gave him a couple of tips to get to the life we live and he told him to read books and not to end up like him that he doesn't have a good job. So George got inspired and started to read book to get to the life we live it.*

Participant 44 received 44 points out of 70 on the HOTS categories. It is apparent that on the first bridging essay he/she didn't understand the quotation. He/she wrote, "*In the story there is to things a liyf were a person gets educated or a person that can't have education like Goerge or Mr. Catanzare."*. Even though the participant did not express an understanding of the unfamiliar information he was able to show a connection to the idea of "living two lives" and bring an example from the text. He/she wrote, "*That in our life you have ups and downs like with George he didn't have any education so he wanted to read but it was a down time for him so in order to get to an up time in his life he got help from Mr Cattenzara that gave him a couple of tips to get to the life we live and he told him to read books and not to end up like him that he doesn't have a good job."*

In the categories of content and language participant number 44 received 16.6 points out of 30. The content was often difficult to follow because of,

incorrect use of basic language structures (“in the story there is to things”), a few spelling errors (“livf”) and grammatical errors (“*So George got inspired and started to read book to get to the life we live it.”).*

Participant 44 Essay Number three

Question:	**Jesse Stuart was born in a log cabin in Kentucky. His writing reflects the regional voice, color and way of life of the area in those days. Stuart was a teacher and a school principal. At that time, the principles of progressive education that had begun to influence schools in American cities were beginning to spread to rural schools as well. Progressive education introduced new subjects and hands-on learning and discipline was meant to teach, not to shame.** **How does this information connect to the story, *The Split Cherry Tree?***
Answer:	*Jesse Stuart writes his stories at a time wen new ideas in education were being taught in rural schools not only the big cities. He wrote the story to tell how important it was to bring new ideas into education, and to teach subjects like geometry and biology. The school curriculum included school trips where the pupils learn first hand about nature.* *He writes about a character like professor Herbert to show the readers the way teachers should related to their pupils. Teacher should also aducate honesty, and fairness. We understand from the story what Jesse Stuart experienced as a teacher of progressive education*

The third bridging essay of participant 44 received 49 points out of 70 on the HOTS categories. Much of the information from the unfamiliar text is just repeated rather than restated in his/her words. In addition, he/she mostly explains why the author wrote the story and not specifically how the story is

connected to the unfamiliar text*, "He wrote the story to tell how important it was to bring new ideas into education and to teach subjects like geometry and biology".* There is a good example brought for Progressive education when he/she writes about Professor Herbert. Also, there is some improvement in understanding the structure of a bridging essay, however the participant was still having difficulty explaining the unfamiliar information and connecting it to a literary text studied in class.

In the categories of content and language participant 44 received 27.3 points out of 30. This showed an improvement from the 16.6 points on the first essay. The content on this bridging essay is easily understood. There is correct use of basic language structures and appropriate vocabulary. Even though there are occasional errors in spelling and grammar the participant did write a fairly well organised bridging essay.

The qualitative and quantitative analysis of these 18 bridging essays displays realistic examples of the performance of three groups of participants who wrote bridging essays during the EFL literature programme. The qualitative data from the analysis of the 18 bridging essays enabled a triangulated approach to understanding the outcomes of the quantitative analysis of the bridging essays.

The HOTS categories were analysed separately from the content and language categories in the qualitative analyses (section 5.3.1) thus enabling one to track the progress or lack thereof in participants' writing in firstly, the area of utilising HOTS and secondly in writing a coherent well-structured bridging essay. The quantitative numbers were better understood because the qualitative analysis helped to interpret the meaning of those numbers. These two data sets supported one another and thus provided a greater understanding and confidence in the research findings.

In summary, the majority of the participants showed progress in their writing of bridging essays over the two year period in which they participated in the literature programme. Their overall writing skills improved as well as their

ability to understand an unfamiliar passage and make a connection between it and the literary text studied in class.

5.4.2 Analysis of the ten lowest quantitative marks on the third essays compared with reported ability to apply HOTS to reading and writing

In order to compare quantitative scores to qualitative answers in the opinionnaire, the researcher chose 10 bridging essays which received the lowest marks on the third essay. These were participants who received passing marks at the end of the two years but were still not showing excellence in the area of writing and applying HOTS to the bridging essays. The question was, were these participants with the 10 lowest scores able to define a HOTS and provide a sound example for how the HOTS could be applied to reading and writing? If so, this would show that even the weakest group to emerge from the two year curricular initiative had in fact learned enough about HOTS to define one and give a specific example for how it could be transferred to reading or writing. These scores were compared to the participants' answers on questions four and five on the opinionnaire (section 4.8.3) because those were the two questions relating to naming a HOTS and explaining how one would use it in reading and writing.

Tables 5.2 and 5.3 show the student ID numbers, the combined mean score for all the markers on the third essay and whether the participant could name a HOTS and explain how it could be applied to reading a text (table 5.2) or when writing an essay (table 5.3). The same ID number for each participant was written on both the essays they submitted as well as the opinionnaire they answered (section 4.11).

Table 5.2 Ten lowest mean scores compared with reported ability to apply HOTS to reading a text.

Student ID	Final Essay Grade	Able to name and explain a HOTS	Not able to name and explain a HOTS
39	73	X	
47	75	X	
12	76	X	
6	76	X	
44	76	X	
29	78	X	
38	78		x
40	78		x
41	82	x	
17	83	x	

Table 5.2 shows the 10 lowest mean scores on the third essays (from 73-83). They are compared here to the fourth answer on the opinionnaire which asked if participants would be able to use HOTS in reading a text. Of the ten participants with the lowest marks, eight of them were able to name a HOTS and to give an appropriate example of how they could use it in reading a text. It can be concluded from the information provided in table 5.2 that participants who received the lowest scores on their third essays still learned a HOTS well enough to explain it and to furnish an example that could be applied to reading a text.

Table 5.3 Ten lowest mean scores compared with reported ability to apply HOTS to writing an essay

Student ID	Final Essay Grade	Able to name and explain a HOTS	Not able to name and explain a HOTS
39	73	X	
47	75	X	
12	76	X	
6	76		x
44	76	x	
29	78	x	
38	78	x	
40	78		x
41	82	x	
17	83		x

Table 5.3 shows the same 10 lowest mean scores on the third bridging essays. Here they are compared to the fifth answer on the opinionnaire which revealed whether or not participants could name a HOTS that they could apply to writing an essay. Of the ten participants who received the lowest marks on their third bridging essay seven of them were able to name a HOTS and give an appropriate example of how they could use it in writing an essay.
It can be concluded from comparing the marks with this question that the majority of the participants with the lowest marks on their third essays learned a HOTS, and how it could be applied to a written essay. However, these participants may need further guidance to improve their writing using HOTS in order to receive an excellent mark on a bridging essay.

The mixed methods approach of triangulation allowed for the quantitative and qualitative data to be integrated with one another. Firstly, the bridging essays were statistically analysed and then a purposefully selected sampling was qualitatively analysed which provided and enabled a clearer understanding of participants progress during the curricular initiative. Secondly, the 10 bridging

essays which received the lowest marks on the third essay were compared to two questions on the opinionnaire. This allowed the researcher to examine themes that emerged from the data beyond the statistical analysis.

5.5 SUMMARY

The mixed method approach for this study yielded both quantitative and qualitative data for analysing and understanding the challenges and key guidelines in introducing and assessing students' HOTS in a literature based EFL curriculum. The quantitative aspect of the study was an analysis of three sets of bridging essays from 50 participants (a total of 150 bridging essays). The results showed that after the curricular initiative the participants' writing improved and their skills of incorporating higher order thinking in their bridging essays advanced. The interrupted time series design and the grading rubric helped to ensure the internal and external validity of this study.

The qualitative study, based on the analysis of the answers on the opinionnaires which each participant completed, helped to further elucidate the findings in the quantitative data by showing whether or not participants were able to define HOTS and give examples of how they could be applied to their reading and writing. Moreover, the participants were asked to give their opinions on the literature programme and to express their views on learning literature and HOTS as part of their EFL high school studies. The opinionnaire provided the participants with the opportunity to reflect upon their work in this programme and to further explain what they had learned. The themes which emerged from the answers revealed a positive view of the programme by the participants.

Inter-coder reliability of the opinionnaires was ensured because there were two coders who communicated regularly and came to consensus on coding the answers and the themes which emerged from the answers given by the participants. The coders were not under any duress to read and code the opinionnaires quickly. There was time for discussion, questions and transcribing the answers to a master coding sheet.

The mixed methods study showed participants' progress in understanding HOTS, applying HOTS to their writing and improving their skills in writing answers in their bridging essays. The 18 bridging essays, which showed most improvement, average improvement and least improvement, were analysed by comparing them with the markers' scores on the essays. This became the main data for the triangulated aspect of this study.

In addition, the 10 weakest participants on the third essays were compared to the answers they provided on the last two questions on the opinionnaires, namely the two questions about explaining a HOTS that they could use in their reading and writing. The majority of the participants who were the weakest in writing a bridging essay with HOTS were still able to show on the opinionnaire answers that they had learned a HOTS and understood how it could be applied to their reading and writing.

Chapter six is devoted to data interpretation which discusses the meaning of these findings in terms of the original question, the theoretical framework, contextual literature study findings and the researcher's experience. In addition, main themes in the empirical data and thematic interpretations of that empirical data are explored. Recommendations for further research in this area will also be discussed.

CHAPTER 6
DATA INTERPRETATION

6.1 INTRODUCTION

One of the aims of this study was to determine to what extent 10th and 11th grade EFL students in Israel were able to understand HOTS and apply them to their written bridging essays after completing two years of the new English literature programme (section 1.7). The previous chapter presented the quantitative and qualitative data results from this research.

Chapter six, the data interpretation chapter, highlights the meaning of the empirical findings in view of the theoretical framework, the literature data, the empirical data and the researcher's own experience. This is carried out through: 1) a discussion of the main findings in the empirical data of both the quantitative and qualitative study; 2) thematic interpretation of both the quantitative and qualitative data; and 3) a synthesis of the mixed methods study which acknowledges the meaning and significance of the findings. This chapter ends with a summary discussion on the empirical data findings, the thematic interpretation of those findings and the synthesis of the two.

6.2 MAIN FINDINGS IN THE EMPIRICAL DATA

The main findings in the empirical data are extrapolated from both the quantitative and the qualitative part of the study. Both the quantitative and the qualitative studies reveal three specific findings each. In this section the six findings gleaned from both the quantitative and qualitative data are discussed.

6.2.1 Main findings in the quantitative data

The main findings in the quantitative data show three specific messages extrapolated from the study which is also confirmed in a section in the literature review (section 2.8). Firstly, HOTS must be taught and practiced if students are to master these skills; secondly, HOTS infused in an EFL

literature programme improve students' writing and thirdly, clearly defined means to teach the programme and to assess students' progress helps to measure the outcomes of a new curricular initiative.

6.2.1.1 HOTS must be taught and practiced for students to learn and apply

The data (section 5.2) show improvement in the average total grades on students' bridging essays for all three markers on 50 bridging essays (total 150 from three different marking periods) over a two year period in the area of displaying HOTS in a written format. There was a clear progression in the students' ability to apply the HOTS of "making connections" during that two year period (section 5.2.4).

The students were exposed to explicit teaching of different HOTS before each unit (literary text) and had to practice writing bridging essays for each of those units as well as on the summative assessments. There is a direct correlation between students continually being exposed to HOTS, the scaffolding of the HOTS so that there is a review of HOTS learned in the past and students' ability to apply those HOTS to bridging essays. This is in agreement with researchers such as Thomas, Davis and Kazlauskas (2007:33) as discussed in section 2.8.1. All of the data collected, points to the success over a two year period in students' writing using a higher order thinking skill because the teachers continued to teach and review the HOTS and students continued to practice them.

6.2.1.2 HOTS infused in an EFL literature programme improves students' writing

HOTS infused in an EFL literature programme improve students' writing in applying HOTS (section 6.2.1.1) but also in the areas of content, organisation and mechanics. The mean scores for each assessor compared to each other on all three essays showed a slight but steady improvement in overall writing

skills (section 5.2.4.2) especially from essay one at the beginning of the intervention until essay three at the end of the programme.

During the two year period of this curricular initiative, students also practiced expository writing of opinion essays and formal letters. Thus, it is possible to say that all of the writing which they learned and practiced had an overall positive effect on improving writing skills. However, with six units in the literature programme, students wrote twelve bridging essays (one in each unit and one on each summative assessment for each unit) throughout the two year period which made up the bulk of student writing formats in the five point EFL Bagrut classes (section 3.5.6.1).

The bridging questions for each unit did not become more difficult with each subsequent literary piece, they were challenging from the very beginning. Each question presented completely new information with which the student was not familiar. With each bridging essay the student had to apply what Willingham (2007:10) refers to as “deep structure” understanding of the bridging question in order to write the bridging essay as well as to decipher the new information. In other words, the students didn’t improve on each subsequent essay because they were familiar with the question but rather because their higher order thinking skills of and their ability to write was progressing.

Therefore, one could argue that it is the two year literature programme that requires writing bridging essays, which positively influences other expository writing, which the students do in their EFL classes in high school. Pogrow (2004:7) argues in his study (section 2.10.2) that infusing HOTS in a programme helps students to improve their overall writing as well as other skills. In addition, several researchers (section 1.3.1.3) confirm that teaching HOTS fosters independent thinkers who have the capacity to demonstrate HOTS in their writing.

6.2.1.3 Clearly defined guidelines to teach the programme and to assess students' progress helps to measure the outcomes of a curricular initiative

Cosgrove (2009:22) comes to the conclusion that continuing professional development programmes (CPD) are instrumental in helping teachers clarify for themselves and their students the process of teaching HOTS and the methods by which they would be evaluated (section 2.10.1). The process of teaching the literature programme and measuring students' progress with grading rubrics (appendix F) are clearly defined to both the teachers and the students in the form of teacher courses, a handbook with all of the information on the different aspects of the programme, a website designed to provide examples of teaching methodologies for the literary units, lesson plans, lists of appropriate literary texts to teach, definitions of the HOTS and literary terms and examples of bridging questions (sections 3.7.2; 3.7.3; 3.7.4). In addition, the teachers of the 50 students in this study all participated in those courses.
The means to assess the outcomes of the students' writing have been delineated in the grading rubric used to mark student bridging essays (appendix E). Both the teachers and the students were given clear criteria for how the bridging essays were to be marked at the beginning of the literature course. The rubric for this study was developed using criteria from two Ministry of Education rubrics for marking essays, with a modification on the category on "making a connection" on the bridging rubric to read, "application of the higher order thinking skill of "making connections'", to further demarcate that category as a specific HOTS category (appendix G).

Through the use of this rubric (appendix E) it has been possible to measure student outcomes on their bridging essays. Several scholars, among them Johnson and Christensen (2006:142), Jacobs and Farrell (2001:7) and Andrade (2001:1) support the use of grading rubrics to articulate criteria for writing essays and for marking students' writing formats (section 4.7.1.1).

The three markers all understood the categories on the rubric and were able to judge as to whether or not the students fulfilled the requirements. The

students understood what was expected of them and they therefore knew how to improve their bridging essays with each subsequent essay over the two year period. There were some students who understood from the first essay how to write a coherent bridging essay and they continued throughout the two year period to write quality pieces (section 5.2.4.1), whereas the majority of the students showed steady improvement in their writing of the bridging essay as they wrote and received feedback on each subsequent essay.

6.2.2 Main findings in the qualitative data

The main findings in the qualitative data showed that most students enjoyed the challenge of infusing HOTS into the study of literary texts (section 5.3.2). The students were able to define and explain how they would apply the HOTS which they learned in the programme to other reading and writing assignments that they encounter.

A further finding shows that interesting curricular materials which promote understanding of other people and cultures motivate students to learn. Von Glasersfeld (1987:47) argues that a person is most motivated by having the ability to organise and understand our experience and the world around us. Brophy (1986:44), Weiner (1992:25) and Woolfolk (1998:376) claim that some of the best ways to motivate students to learn and to enable intrinsic motivation is to get them to value the subject matter and the learning activity (section 2.7.2).

All of these findings support previous studies, such as those done by Kaasboll (1998:4), Shen (1997:259) and Alwehaibi (2012:194) which emphasise the importance of infusing HOTS into an EFL curriculum as a method for improving reading comprehension, writing skills and motivating students with relevant and challenging curricular materials.

6.2.2.1 Students enjoy the challenge of infusing HOTS into an EFL literature curriculum and expressing what they learned in writing

When students were asked to name one aspect of the literature programme which they found challenging and to explain why, 46% of them responded that the most challenging aspect of the programme had to do with a writing task that was required as part of the programme (section 5.3.2). Twenty two percent responded that explaining the HOTS and the literary terms was the most challenging and 12% felt that the language in the literary texts was the most difficult aspect of the literature programme. However, when asked if the material was too challenging for them only 2% of the students responded positively and furthermore, 18% of the students stated that the literature programme caused them to think and 10% said that it helped them to improve their English language skills (section 5.3.2). This shows that the majority of the students' appreciated the challenge the programme provided and that they were confident enough at the end of the literature programme to recognise that they could master the material presented to them and express their ideas in written formats. Liaw (2007:75-76) supports these findings with a study she conducted in a content-based reading and writing programme for higher order thinking in an EFL class. She confirms that the students enjoyed being able to think and express themselves in English (section 2.10.3).

Students' progress was directly related to the success they experienced as they realised that they were learning new skills and that they were encouraged to think for themselves as a means to developing these new skills. Leedy (2010:3) argues that people have a desire to be challenged by a problem and will not be satisfied until they engage with it and try to understand it. The findings concur with this statement.

The students enjoyed the challenge of infusing HOTS into the literary texts because it encouraged them to engage in their learning, to try to understand the material on both a surface structure and deep structure level (Willingham 2007:8) and to organise and intuit the materials in a way that critical and creative thinkers do as they generate many possible answers and

interpretations of a literary text (sections 2.4 & 2.6.2). These findings are supported by Hobson and Schafermeyer (1994:423-425) and Wegerif (2002:20) who claim that HOTS when infused in reading and writing tasks foster independent thinkers who have the capacity to demonstrate HOTS in their reading and writing.

6.2.2.2 Students are successful in defining and explaining how they could apply HOTS to their reading and writing after participating in an EFL literature programme which infuses HOTS

When asked to give an example of a HOTS that could be applied when reading a text and explain how they would apply it, the majority of the students were able to specify a HOT skill that they use or will utilise in their reading of texts and they gave an explanation on how they would apply the HOTS. Furthermore, most of the students were able to name a HOTS and give an example and an explanation of how they could apply it to writing essays. Finally, when mean scores were compared on the last set of essays from all three markers, on students who received the lowest grades on the third essay, it was determined that seven out of those ten students could define a HOTS and explain how to use it in a written format and eight out of those ten could define a HOTS and explain how it could be used in reading a text, even though their bridging essays did not receive high marks (section 5.3.6).

When infusing HOTS into literary pieces Abu Shihab (2007:211) and Paul (1992:24) state that it is not only possible to teach HOTS in an EFL class but fostering those macro skills (section 2.6.2) helps the students to understand the text better than if the teacher only focuses on decoding the language in the text. Micro skills refer to understanding the lexis, sentence structure and factual information (Paul 1992:11), whereas macro skills are the ability to understand the text and the relationship of the ideas presented (Abu Shihab 2007:210).

The findings of this study support the conclusion that teaching students to employ macro thinking skills (HOTS) in reading and writing will help them to comprehend the text better than if the students merely have an understanding of the micro level (lexis and sentence structure). It also contributes strongly to their ability to write about the text, not just expressing the simple meaning of the piece (micro or factual level) which is an essential element for comprehension, but to discuss the ideas (macro level) of the text and to apply both inductive and deductive reasoning skills (section 2.6.3) in a coherent and logical written format.

6.2.2.3 Interesting curricular materials which promote understanding of other people and cultures motivate students to learn

The majority of the students in the study (86%) attested to the fact that they enjoyed reading the literature in the EFL literature programme (section 5.3.2.). The main reasons given were that the material was interesting to them, they received strong life messages from the texts which they read and they learned about other cultures. It is clear from these findings that interesting curricular materials fosters a desire in students to learn. Dornyei and Ushioda (2013:7) explain the reason for this in their discussion on intrinsic motivation. It means something that causes someone pleasure like enjoying an activity. It comes from inside the individual unlike extrinsic motivation which is driven by external rewards. The students' answers about why they enjoyed reading the literary texts are an example of an activity that comes from within the person (section 2.7.2).

Furthermore, motivation is essential to encouraging people to find meaning and understanding (section 2.7.2). When students are presented with curricular materials that help them to understand the world around them (e.g. learn about other cultures and receive strong life messages) then they are motivated to participate in their learning because that process becomes a creative process. It is relevant because they produce it themselves with the information or literature, in this case and thus it is an essential motivating factor for the success of any curricular initiative. These concepts are

supported by Constructivist theories which explain how people create systems that provide meaningful understanding of the world and their experiences (Raskin 2002:1).

In Liaw's study (2007:75-76) she reports that students performed significantly better on their English language proficiency test after participating in a content-based EFL reading and writing with HOTS programme. More importantly she argued (section 2.10.3) that students reported that their confidence and motivation increased in learning and thinking in English and their HOTS improved in other subjects in school as well.

Both the quantitative and the qualitative studies respectively, reveal three major findings. The quantitative findings emphasise that HOTS infused in an EFL literature programme does improve students' writing, that it is important to teach the HOTS and have students practice reading and writing using those HOTS and that it is essential to have clearly defined guidelines for teaching and assessing students' progress in the programme. The qualitative data reveal that the students enjoy the challenge that HOTS infused in an EFL literature programme provides, students are successful in defining and applying HOTS to their reading and writing after participating in an EFL programme which infuses HOTS and the importance of choosing quality curricular materials to which the students can relate.

6.3 THEMATIC INTERPRETATION OF QUANTITATIVE DATA

Thematic interpretations of the quantitative data support the literature (Sternberg 2009:30; Astleitner 2002:53; Feuerstein & Jensen 1980:423; Pogrow 2004:4; Costa & Kallick 2007: xiv) that HOTS are not an innate skill but must be taught. As a result, students' higher order thinking skills will improve with practice. Teachers who are trained to teach a programme infused with HOTS help their students to succeed and a quality assessment tool must be used to measure the outcomes of students' writing to ensure validity (sections 2.8; 2.10.1; 4.7.1.2).

6.3.1 HOTS are not innate but must be taught

Many scholars, among them Lewis and Smith (1993:135-136), Shaughnessy (2008:2) and Paul (1992:15) discuss the definition of higher order thinking and the importance of the active process of building cognitive structures rather than passively acquiring information. Learning to use knowledge to construct meaning and understanding of the world is a main tenant of Constructivist theories, which views knowledge acquisition as a process of both perceiving and interpreting one's experience. It involves reasoning and reflecting skills as a way to comprehend. Whether it is Piaget and Inhelder (1969:153), Dasen, Dasen and Mishra (2010:316) or others, the conclusion they reach is that the mental development of thinking occurs in stages, in the context of family and society (Vygotsky 1978:79-91) and from spiralling material the students learn by introducing them to challenging ideas and concepts and continuing to build on that knowledge throughout their education. In other words, higher order thinking must be taught.

Costa and Kallick (2007:71), Halvorson (2005:133) and Pogrow (2004:7), further stipulate that higher order thinking is as much a skill as it is a body of knowledge and just as with any skill it must be practiced and applied to new situations if the person is to become proficient in applying HOTS. It requires repeated exposure to cognitively demanding tasks (sections 2.6 & 2.6.1). The quantitative research supports this notion that repeated exposure to bridging tasks, which by their very nature require higher order thinking in order to understand them and to write the bridging essay, will improve their ability to apply HOTS to their writing. The bridging task (sections 1.9.2, 3.5.6.1 & 3.6.2) exposes students to challenging literary texts which cause them to think.

6.3.2 Teachers' professional development helps their students' understand and implement HOTS

Research done by Cosgrove (2009:5), Zohar (2004:293), Mok (210:283), Ben-Chaim and Zoller (2007:353) among others, postulate that success in

teaching the skills of higher order thinking to students is commensurate with the level of teacher education and training. That training must be based upon innovative methodologies for imparting these skills and traits. It is not sufficient for teachers to obtain domain knowledge in the subjects which they are teaching, but part of their pedagogic training must include intensive on-going development in the area of infusing higher order thinking into their lessons. The curricular intervention of infusing HOTS into an EFL high school literature programme requires a commitment to teaching educators how to implement this programme (sections 2.10.1; 3.7)

In Cosgrove's study (section 2.10.1) of a continuing professional development programme (CPD) for teaching HOTS in the classroom, he concludes that CPD programmes can only be successful if they have practical implications for the classroom and if the teachers are actively engaged in their own learning and in supporting the learning of their colleagues. Those teachers who do not have the benefit of explicit instruction in HOTS tend to think of it as a checklist that one ticks off as they introduce the skill to their students (Cosgrove 2009:51). However, with an on-going professional learning programme, support from colleagues and opportunities to bring these ideas to the classroom, instead of higher order thinking being like an "add on" to the content, teachers realise that it provides a lens through which students see and learn the content. It allows them to internalise what they learn at a deeper level and they therefore understand it better.

Of the three main theoretical approaches to teaching higher order thinking to students (section 2.8) the literature programme is an example of subject specific approach and infusion method (section 2.8.2). Glaser (1984:99), Elder and Paul (2009:35), Adler, Norris and Siegel (1991:62), Liaw (2007:52) and Halvorsen (2005:2) advocate the subject specific approach and infusion method when teaching HOTS to students. They argue that reasoning and learning develop together by active application of subject specific knowledge. The processes of thinking are intertwined with the content of thought which is domain knowledge. One must have background knowledge and practice using it in order to implement HOTS. Thus it is incumbent upon the teacher to

have training in both the subject and teaching HOTS so that the student has the opportunity to practice skills learned within the domain. In the case of this study, the domain is English literature.

The teachers in the study all took the initial course for teaching Literature and HOTS, the handbook and the website are continually being updated by the Ministry of Education English Inspectorate and there are literature counsellors throughout the country who make themselves available for face to face meetings and on-line question/answer opportunities for all of the English teachers who teach this programme. As a result, the majority of the students in this study understood the literature, they were able to define and give examples of the HOTS and even more importantly because of applying the subject specific approach and infusion method, they were able to transfer those higher order thinking skills to bridging essays.

6.3.3 A quality assessment tool must be utilised to measure the outcomes of students' writing in a literature programme infused with HOTS

According to Creswell (2014:174-176), using rubrics which have well-defined criteria as an assessment tool for grading written formats enables teachers, students and researchers to agree upon specific criteria for marking and evaluating answers and essays. The rubric provides a level of external validity (section 4.9.1.2) which when used properly, as was done in the case of this study, becomes a strong indicator of the progress or lack thereof of students' writing.

The bridging essay was marked using a rubric (appendix E) which has five categories. Those include:

Category one - Content and organisation
Category two - Explanation of the meaning of the new information
Category three - Application of the HOTS of "making connections"

Category four - Example provided showing the connection between the literary text and the new information
Category five - Language use and mechanics

Markers could give in-between marks in each category. The calculation of those marks, based on the criteria specified in the rubric, showed a high level of inter-rater reliability which helped to ensure validity of the data interpretation of the bridging essays (Lombard & Grosser 2004:2).

6.4 THEMATIC INTERPRETATION OF QUALITATIVE DATA

Thematic interpretations of the qualitative data support the research that argue firstly tasks which challenge students to think and to learn new skills motivate them to want to learn and to succeed in their studies. Furthermore, literature is a domain subject in which HOTS can be infused and students can apply those skills in their reading and writing. The third theme which emerges from the qualitative data is that curricular materials which are interesting to students enhance their joy of learning. These three themes provide an understanding of the main ideas which emerged from the answers to the five questions presented to the 50 students in the study on their opinionnaires.

6.4.1 Tasks that challenge students to learn new skills and new information motivate students to want to learn and succeed

Peter and Norren Facione (1995:11), Costa and Kallick (2000:2) and Leedy (2010:3) postulate that an inquisitive person is one who values; knowing how things work, being well-informed, being challenged by a problem and not being satisfied until he/she engages with it and tries to understand it. This is a process which leads to discovering knowledge and without it human beings would not advance in their understanding of their world or the people in it. The challenge facilitates the emerging of the human trait of inquisitiveness and motivates people to want to learn and to be successful. The qualitative data revealed in several answers (section 5.3.1.2) that the challenges of the literature programme which infused HOTS was enjoyable, the students

learned many skills and they realised that they could overcome the difficulties and succeed in understanding the literary texts as well as the HOTS of "making connections" and learn how to apply them to their reading and writing.

Emotions impact on students' motivation to learn (section 2.7.1). Therefore, it is essential that the teacher provides a positive learning atmosphere that supports students' belief in their ability to learn new skills and to succeed in meeting the challenges which learning should engender. The inquisitive person is motivated to learn whether there are short-term rewards or not, thus a programme which fosters higher order thinking skills must also encourage intrinsic motivators. This notion is part of constructivist theories which state that the most reinforcing reward for learning is the ability to organise and understand our experience. The data support this theory as students continued to improve in their ability to make sense out of sometimes difficult literary texts and challenging HOTS questions. By the end of the programme only 2% felt that the material was too challenging for them (section 5.3.2.).

6.4.2 Literature provides opportunities to learn HOTS

Several scholars (section 2.8.2) argue that reasoning and learning develop together through the active application of subject specific knowledge. Among them are Wegerif (2002:20), Willingham (2007:8) and Barzilai and Zohar (2008:51), who postulate that the process of thinking is intertwined with the content of thought which is domain knowledge, in this study English literature. Without background knowledge and practice using HOTS the students would not be able to implement HOTS. Shen (1997:258) showed in her study on *Enabling Higher Level Thinking Process in ESL Reading*, that higher order thinking emerges from discussions on the literature. This study also confirmed these findings.

Students' responses showed that they enjoyed reading the literature. The stories, novels, plays and poems naturally lent themselves to infusing HOTS. The top four choices of HOTS that the students chose to mention and that

they described properly (section 5.3.2.) were, predicting, cause and effect, uncovering motives and compare and contrast. These four HOTS encouraged discussions on characters in a story (uncovering motives, comparing and contrasting), or the plot of the story (cause and effect, predicting what will happen), or poetry (compare and contrast the stanzas and their meaning). These are only a few examples of how natural it is to infuse HOTS into literature as a domain subject.

Moreover, students explained that the learning and practicing of these HOTS skills are something which they can and will apply to other reading and writing tasks (sections 5.3.2.; 5.3.2.). Students felt that they would be able to apply the HOTS of, predicting, uncovering motives, cause and effect and making connections, as the top choices of HOTS that could be applied to their reading. The students chose cause and effect, compare and contrast, uncovering motives, predicting, applying and explaining patterns as HOTS that they now knew how to apply to written formats.

All of these HOTS skills were taught and practiced in the literature programme. Students learned to identify them in the literature and practice them when answering questions on the literary texts. As a result, they understood the meaning of the HOTS because the teacher had several opportunities to spiral the various HOTS within the literature while reading and analysing each piece.

6.4.3 Curricular materials which are interesting to students enhance their joy of learning

Eighty six percent of the students in this study proclaimed in their opinionaire answers that they enjoyed reading the literary texts in the literature programme. The reasons varied but included statements that the material caused them to think, they gleaned strong life messages from the stories, they learned about other cultures and they improved their own English skills, which is an essential goal for them as they approach matriculation examinations (Bagrut) and apply to tertiary educational programmes.

Hanscomb, Title & Issn (2011:9) argues that when teaching higher order thinking there needs to be many examples provided and opportunities to use those skills. The more that the examples resonate with students' interests the more effective they are likely to be. When students are presented with interesting materials that are relevant to their lives they not only enjoy learning but their ability to learn the skill is enhanced.

Included in the ten core assumptions of current communicative language teaching (Richards 2006:25) is the importance of the content brought to the classroom being relevant, purposeful, interesting and engaging. The ability of students to be able to communicate, in the case of this study through bridging essays and opinionnaires, and enjoy that process depends upon the interest and relevancy of the materials presented in the classroom. Literary texts, in particular, bring cultural enrichment, universality, personal relevance, variety and interest (Hismanoglu 2005:54) to the EFL classroom.

6.5 SYNTHESIS OF MIXED METHOD STUDY

The synthesis of this mixed methods study shows the importance, meaning and significance of the findings within the body of knowledge and understanding of HOTS programmes infused into domain subjects. After completing two years of a curricular initiative developed by the English Inspectorate in the Ministry of Education in Israel, students' bridging essays show marked improvement both in content and language as well as in the ability to apply one of the HOTS of "making connections" to new material presented (section 5.2).

Once the students understood the HOTS, because they learned and practiced them within a specific domain, then they were able to apply them to new situations. The bridging essay in this study provided an example of students' ability to apply what they had learned using new information. In addition, the answers to two questions on the opinionnaires, four (section 5.3.2) and five (section 5.3.2) revealed that after two years in a subject specific and infusion

method programme for HOTS, over 70% of the students could name a HOTS, define it and provide an example of how they could use it in their reading and writing.

6.5.1 Assessing efficacy of HOTS' programmes is possible through quality assessment tools and methods

According to *The Delphi Report on Critical Thinking* (Facione1990:16) it is advantageous to gather evidence regarding HOTS performance in many situations, using several assessment methods and to cross check the results of any one way of assessment (section 2.10). Elder and Paul (2007:4), Cosgrove (2009:19), Paul and Nosich (1993:15), Ennis (1985:3) and King, *et al* (2010:3) all agree that the written essay as a way to measure HOTS is essential. Facione (1990:7) states that it is advisable to review the "rough draft" of an essay when evaluating HOTS because the process of evaluation and inference may not always be apparent in the final version, nor would it be possible to discover where the faulty logic might have occurred in the student's argument with only the final version.

The bridging essays written in this study were cross-checked by three markers over a two year period. The first essays represented what could be considered a "rough draft" as they showed the results of the students' first exposure to the programme. Essays two and three provided additional examples of the progress students made as they continued to practice writing bridging essays which included higher order thinking.

Research (Elder & Paul 2009:42) also shows teachers who are not necessarily scholars or experts in the field of HOTS can be taught to teach and to evaluate HOTS in their students' written formats (sections 2.10.1 & 3.5.3). This requires training, support and proper measuring tools. The rubric is a valid operational technique that is recognised in educational research (Johnson & Christensen 2006:247). The rubric used to measure the outcomes of the bridging essays represents a specific set of steps or operations

followed by the students when writing a bridging essay. Furthermore, the categories on the rubric (appendix E & section 6.3.3) were clear to both the teachers and the students which enabled them to understand the criteria for which the bridging essays were evaluated and marked.

Another assessment tool for checking the efficacy of HOTS programmes is the opinionnaire. Facione (1990:12) argues in the *Delphi Report on Critical Thinking*, that a person who is proficient in a particular skill is said to have the aptitude to execute that skill. In other words it is not just about mastering a HOTS but knowing when to apply those skills. The last two questions on the opinionaire (sections 5.3.2.; 5.3.2) specifically measured the students' ability to understand other HOTS (in addition to "making connections" measured in the bridging essay) and to explain how they could be applied to their reading and writing in other situations. The claims made by the students on these two answers will have to be assessed in future research (section 7.6).

6.5.2 Learning HOTS in an EFL literature programme enhances understanding of the literary texts and their connection to new information

The students could not write a successful bridging essay unless they were able to understand the literary text learned in class and the unfamiliar text presented. The study of that literary text before the summative assessment included six separate sections: 1) pre-reading exercise; 2) reading the literary piece, learning the vocabulary and answering basic understanding (LOTS) questions; 3) answering analysis questions which included learning HOTS that were applied to the literary text as well as literary terms; 4) bridging question and essay (bridging task); 5) post-reading activity and 6) reflection on what they learned, including questions about how they might apply the HOTS they learned to other situations (section 3.5.6.1).

The HOTS questions included justification or extended HOTS questions which asked the students to "justify" or explain which HOTS they used and how they used it to answer an analysis question. Ennis (1993:184) argues that adding

justification questions to an answer compensates for a short answer or multi-choice answer in that the student must explain the reason they chose a particular thinking skill used to arrive at that specific answer.

In the case of the literature programme, the justification or extended HOTS question provided an additional challenge for the students to analyse the literary text by applying a HOT skill they learned and explaining how they used that specific HOTS to answer that specific question. The results show that students' comprehension of the literature on more than a basic understanding level enabled them to continue to improve on the bridging essays even when the new information was challenging (sections 5.2.2; 5.2.3; 5.2.4).

This further validates the use of the interpretive/constructivist paradigm for this study (section 4.3.1) which states that the mind constructs its own conceptual map for interpreting and interacting with the world around it. Thus the approach to the study was to use common sense, practical thinking and sound judgements all of which fall into the category of higher order thinking. Each bridging essay and each answer on the opinionnaire was different. Every written response provided an example of the student constructing their own explanation based upon their interpretation of the materials presented to them in the literature programme infused with HOTS. Students needed to support all of their conclusions with examples which showed a clear understanding of the higher order thinking skill used as well as an understanding of the literary text covered in their EFL classes. The focus was on the view of the participants, with a systematic gathering of empirical information on the part of the researcher.

6.5.3 Infusing HOTS into an EFL Curriculum improves communicative competence in writing

The strongest conclusion drawn from a synthesis of the data is the continued improvement of students' bridging essays over the two years that they

participated in the EFL literature and HOTS programme. From the beginning of the programme the mean score total for all three markers was 64 (section 5.2.5), by the second essay it had increased to 81 and by the third essay to 91. With the breakdown of the first category into *content, organisation, language use and mechanics*, the marks improved from 22 out of 30 in the first essay, to 26 out of 30 in the second essay and to 27 out of 30 in the third essay (section 5.2.4.2). In the area of implementing the HOTS of "making connections" (*explaining the new information, making a connection to the literary text and providing an example to support that "connection" from the literary text*), student scores increased from 42 out of 70 in the first essay, to 55 out of 70 in the second essay and to 64 out of 70 in the final essay (section 5.2.4.3).

Although research has shown that age and maturity is a factor in utilising HOTS in all aspects of one's life, including writing (section 2.7.3), there are people who never reach a level of using HOTS. There could be several reasons for this chief among them is the lack of opportunities to practice higher order thinking and to understand its value (section 2.7.3). This is one of the reasons why programmes such as this EFL literature curriculum, which infuses HOTS, are so essential. Teaching HOTS fosters independent thinkers who have the capacity to demonstrate higher order thinking skills in writing, as well as reading, speaking and listening (section 1.3.1.3). Of these four main methods of communication one could argue that writing is the most overt higher order thinking activity (section 1.3.1.3) because it involves re-writing, reviewing the statement or argument, searching for the best examples to support those arguments and deciding which words to use to best express those ideas. This is the same process students traversed with each bridging question they answered.

Costa and Kallick (2007: xvii) postulate that higher order thinking skills need to engender more than specific skills or behaviours, they need to become habits. In their research on HOTS they developed a concept which they call *Habits of Mind* (section 2.6.1) in which they discuss the development of thinking as being something which needs to be taught and fostered within a

school curriculum. Those “habits” begin with individuals and then move out into the community. Among those “habits” are the ability to apply old knowledge to new situations and thinking and communicating with clarity and precision. This curricular initiative shows that by infusing HOTS into a domain specific subject, like literature, students’ develop the “habits” of applying new information to learned material and the capacity to communicate in writing with clarity and precision.

Developing and utilising HOTS is an on-going process which requires people to continue to apply these strategies in their quest for knowledge and understanding. *The Habits of Mind* (Costa & Kallick 2007:xvii) work to promote HOTS in all areas of a person’s life with the argument that by becoming a better thinker one will become a better writer, reader and listener (section 2.6.1).

These *habits of mind* are also referred to in the literature as the hypothetical attitude, critical spirit or critical attitude (section 2.5.4). Paul (1992:15-16) argues that these traits include the concept of intellectual empathy which has a moral depth to it which honours the importance of values, a person’s character and a person’s actions. When students learn and practice HOTS skills after a certain amount of time the skills become second nature and they begin to apply them to other aspects of their learning and their lives. In other words, they become *habits of mind* (Costa & Kallick 2007:xvii) and the hope is that this way of thinking will reflect in their actions and relationships to their fellow human beings in a diverse society open to many ideas and many options based on sound reason, clarity, dialogue and a thriving democratic process.

6.6 SUMMARY

The Communicative Language Teaching Movement (CLT), in relation to EFL classrooms, advocates the active process of constructing meaning, understanding and skills (section 1.2) in the foreign language. This approach focuses on opportunities to develop accuracy and fluency and to link speaking, reading, listening and writing skills together (section 1.2). It is with

this broad theoretical framework in mind that the findings of the empirical data from chapter five can be interpreted.

The CLT Movement advocates the incorporation of thinking skills into the curriculum with the goal of encouraging students to embrace thoughtful and deep understanding (section1.4) through content-based instruction (CBI) and task-based instruction (TBI). The literature programme in Israel which infuses HOTS is a curriculum based upon CBI and TBI. The content of the curriculum is chosen to nurture extensive student engagement in the reading of the literary texts and in writing. The findings reveal what the literature argues (section 2.8.2) namely that HOTS must be taught and practiced and are best taught in the context of a subject. In addition, students' mastery and use of thinking skills is best measured in a written essay format (sections 2.9.1 & 2.9.4).

The main findings in the quantitative data show that HOTS when infused in an EFL literature programme improve students' writing formats (section 5.2), HOTS must be taught and practiced in order for students to learn and apply them and clearly defined guidelines for teaching a HOTS programme and assessing students' progress are essential.

The quantitative findings further support claims made by researchers such as Shihab (2007:210) and Paul (1992:18), that teaching students to use HOTS will improve their skills in reading and writing (sections 1.3.1.3; 2.6.2). Students can become critical readers and writers through the development of micro and macro skills, deductive and inductive reasoning and metacognition (sections 2.6.2; 2.6.3; 2.6.4). Thus, the act of writing, re-writing and practicing a particular written format enhances both cognitive and meta-cognitive thinking.

The main findings of the qualitative data show that students enjoy the challenge of infusing HOTS into the literature curriculum and expressing what they learn in their writing. In addition, students are successful in defining and giving examples of how they could apply HOTS to their reading and writing

after participating in this type of programme. An essential component for the success of an EFL programme infusing HOTS into literature is the use of quality curricular materials which contain stories/plays and poems that are interesting and engaging for the students (section 5.3).

The qualitative findings support the literature which shows that students are motivated and enjoy learning when they are challenged with a programme that infuses HOTS into an EFL literature curriculum. The data show that providing challenging and interesting educational materials, that enable the development and production of HOTS in reading and writing, are essential to the success of students' ability to define and articulate what HOTS are and to apply them to other areas (section 5.3).

The thematic interpretation of the quantitative data revolves around three major themes. They are: 1) HOTS are not innate but must be taught; 2) writing formats using HOTS will improve over time with practice and quality teaching and 3) a quality assessment tool must be used to measure the outcomes of students' writing to ensure validity (sections 2.8; 2.10; 4.7.1.2).

The thematic interpretation of the qualitative data consists of three major themes. These include: 1) tasks that challenge students to learn new skills and new information motivate students to want to learn and succeed; 2) literature provides opportunities to learn HOTS and 3) curricular materials which are interesting enhance students' joy of learning (section 5.3.2).

A synthesis of the interpretation of the data leads to four conclusions. They are: 1) teaching HOTS within the domain of literature enables students to learn and apply the HOTS skills to other disciplines; 2) assessing efficacy of HOTS programmes is possible through quality assessment tools and methods; 3) learning HOTS in an EFL literature programme enhances understanding of the literary pieces and their connection to new information and 4) infusing HOTS into an EFL curriculum improves communicative competence in writing.

The final chapter, chapter seven, summarises this study. It also provides the research conclusions and recommendations.

CHAPTER 7
SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

7.1 INTRODUCTION

This chapter provides an overview of the study which entails a summary of the findings in the literature study, a summary of the findings in the empirical study, research conclusions, recommendations, recommendations for further research, limitations of the study and concluding remarks. The process of reviewing the literature on HOTS programmes around the world, the philosophy of infusing HOTS in specific domains and conducting an empirical study in Israel, which now has an EFL literature programme that integrates the learning of HOTS, proved challenging and rewarding on many different levels. This study hopes to contribute to the research on the growing body of knowledge on the efficacy of teaching HOTS in classrooms.

7.2 OVERVIEW OF THE STUDY

The aim of this study was to determine the pertinent challenges and key guidelines in introducing and assessing HOTS in a literature based English foreign language curriculum (section 1.7). In addition this research investigated to which extent 10th and 11th grade EFL students in Israel were able to understand HOTS and apply those to their written bridging essays after completing two years of the English literature programme.

Chapter 1 explores the definition of HOTS. The rationale for teaching HOTS in schools with the advent of the Communicative language teaching movement (CLT) was presented, since the CLT is currently the most widely accepted approach to teaching EFL in Israel (Steiner 1999:1; section 1.4). The motivation for undertaking the research, the formulation of the problem, the research aim, design and methods, respectively, as well as measures for trustworthiness, validity and reliability and ethical measures were discussed.

Chapter 2 discusses the historical, philosophical, psychological, pedagogical and societal origins of higher order thinking (section 2.2). Traits of higher order thinkers include scepticism and trust, inquisitiveness, creativity, open-mindedness, a critical attitude and confidence in reason (section 2.5). The aspects which influence HOTS include emotions, motivation, age and teachers' ability to teach HOTS (section 2.7). There are several theoretical approaches and methods for embedding higher order thinking into school curricula and tools that have been developed over the years to measure and assess HOTS (section 2.8). An overview of the outcomes of four higher order teaching programmes is presented (section 2.10).

Chapter 3 provides an overview of the EFL curricula in Israel since the advent of the CLT movement (section 3.3). It traces the infusion of HOTS in the EFL curricula of 1977, 1988, 2001and 2012. The pilot programme for formally introducing HOTS into the EFL curriculum through literature and internal and external assessment options is explained (section 3.4). In addition, a discussion of higher order thinking programmes and studies in Israel ensues as well as a description of courses that are part of teachers' professional development in HOTS (section 3.5).

Chapter 4 is the research design and methods chapter. It opens with the rationale for the empirical research and continues with a discussion on the research paradigm and approach (section 4.3). A mixed method approach was done in this study. Both quantitative and qualitative data were collected which included 150 bridging essays written by 50 participants over a two year period. An opinionnaire (appendix H) was also completed by each of the participants. The selection of participants is explained as well as the methods and process of data collection, data analysis and data interpretation (sections 4.5, 4.6 & 4.7). The chapter ends with a discussion on ethical considerations in research (section 4.10).

Chapter 5 is the data analysis chapter. The quantitative data from the three markers who scored the 150 essays are compared to one another in terms of overall mean scores and mean scores in two separate categories (section

5.2). Issues of validity and reliability are explained as well. A qualitative data analysis of each of the five questions on the opinionnaire is discussed along with issues of inter-coder reliability (section 5.3). In the mixed method data analysis a sampling of bridging essays that underwent critical and interpretative analysis is discussed as well as analysis of the ten lowest quantitative marks on the third essays compared with the reported ability to apply HOTS to reading and writing (section 5.4).

Chapter 6 is the data interpretation chapter. The main findings in the empirical data and the thematic interpretation of those findings are discussed (sections 6.2 & 6.3). This includes the main findings in the quantitative and the qualitative data. In addition the synthesis of the mixed method study is explained (section 6.5).

7.3 SUMMARY OF KEY FINDINGS IN THE STUDY

The summary of key findings in this study comes from both the literature review and the empirical study. There are three key findings from the literature review and four from the empirical study.

7.3.1 Summary of key findings in the literature review

The summary of key findings in the literature review revolves around three main areas. Firstly, the research shows that there are characteristic traits and dispositions that a person who has mastered HOTS displays. Secondly, HOTS must be explicitly taught and practiced to become a “habit” and thirdly, there are three interdependent areas that must be addressed in order to successfully impart HOTS in a classroom setting. Those include quality teacher training programmes, quality teaching methods and inclusion of cognitive and metacognitive tools to measure the outcomes.

7.3.1.1 Higher order thinking skills - characteristic traits and dispositions

Sections 2.5 and 2.6 focused on defining a critical thinker as one who has mastered HOTS, which comprise a range of characteristic traits and dispositions. The traits are embodied in several categories such as being sceptical, inquisitive, creative, open-minded, embracing a critical attitude and having confidence in reason (Cottrell 2005:2; Lipman 2003:32; Paul 1992:16; Claxton, Edwards & Scale-Constantinou 2006:57; De Bono 1993:1 and Sidhu, Chan & Kaur 2010:55). Costa and Kallick (2007: xvii) argue that HOTS must include more than traits and dispositions; they must become habits. They include persistence, managing impulsive behaviour, listening with empathy, flexibility in one's thinking, striving for accuracy, questioning, applying old knowledge to new situations, thinking and communicating with clarity and precision and innovating, as examples of these habits. The habit is formed when the HOTS have been mastered and they come as a natural reaction to new situations.

In terms of language learning, reading and writing, HOTS focuses on both the micro and macro skills, as discussed by Paul (1992:24) and Abu Shihab (2007:210), which are necessary to understand the meaning of a text, how the sentences are organised and to determine what the relationship is between the ideas presented in the text to one another.

Furthermore, metacognition is an essential characteristic of HOTS (Pogrow 2004:2; Halpern 2007:9; Dean& Kuhn 2003:1; Magno 2010:137 and Zohar & Ben David 2009:1657). The practice of higher order thinking includes reflecting upon one's learning, thinking and actions. HOTS involve self-reflection and self-assessment. The process of metacognition enhances students' problem solving abilities by enabling them to improve their ability to comprehend the problem (Thomas, *et al* 2007:330).

7.3.1.2 HOTS must be taught and practiced

The importance of teaching and practicing HOTS was discussed in section 2.8. Halvorson (2005:133) states that the skill of higher order thinking must be practiced and applied to new situations in order for a person to become proficient in it. Pogrow (2004:7) argues that it takes one to two years of intense conversation and reflection to develop HOTS. Costa and Kallick (2007:71) postulate that in order to develop intuitive awareness "repeated exposure" to cognitively demanding tasks is required.

Verbal ability can have an influence over a student's HOTS ability. The more verbal students (Cohen, *et al* 1995:86) showed higher gains in the use of HOTS in a cooperative learning group. When students have the opportunity to practice the HOTS they learn, both in discussions verbally and in their writing tasks they show greater gains in mastering these skills (Shen 1997:3).

7.3.1.3 Factors that influence success in teaching HOTS

Success in teaching HOTS is dependent on three specific factors (section 2.11). These comprise of; quality teacher training programmes (De Corte & Masui 2009:181, Pogrow 2004:3, Sidhu, *et al* 2010:61, Cotton 1991:7, Alwehaibi 2012:53, Chen 2011:374, Lombard & Grosser 2004:215, Ketabi, *et al* 2012:8, Jacobs & Farrell 2001:14, De Corte 2003:54, Costa & Kallick 2007:94 and Riasat, *et al* 2010:43), quality teaching methods and inclusion of cognitive and metacognitive tools to measure outcomes (Liaw 2007:52; Thomas *et al* 2007:332; Sharma & Hannafin 2004:180 and Corich, Norris & McPeck 2007:165). These factors are interdependent (Wegerif 2002:20; Norris 2003:5; Korkmaz & Karakus 2009:53 and Woolfolk 2005:159) in that with any curricular initiative the educators responsible for the outcomes must be trained to understand the goals, how to reach those goals and how to evaluate if in fact the outcomes reflect the original objectives (Duenas 2004:73; Stoller 1997:1-2 and Holton & Clarke 2006:131).

As was indicated in section 2.7.4, the literature review revealed that success in imparting the skills, traits and habits of HOTS to students is conditional upon teacher education and training in this area (De Corte & Masui 2009:181; Pogrow 2004:3; Sidhu, *et al* 2010:61; Cotton 1991:7; Alwehaibi 2012:53; Chen 2011:374; Lombard & Grosser 2004:215; Ketabi, *et al* 2012:8; Jacobs & Farrell 2001:14; De Corte 2003:54; Costa & Kallick 2007:94; Riasat, *et al* 2010:43). Teachers must undergo intensive staff development that is continuous in the area of integrating HOTS into their lessons. Constructivist theories embrace the notion of the teacher becoming a participant in the knowledge building community of the classroom and not the sole disseminator of information (Littlewood 2011:541). For this to happen, the teachers must enable the students to use a metacognitive awareness approach in their planning (Alwehaibi 2012:61) monitoring and evaluation of their lessons.

The training in HOTS for educators helps the teachers to focus on thinking activities and questioning and therefore encourages their students to think for themselves. Scholars (Cosgrove 2009:51; Pogrow 2004:7; Choy & Cheah 2009:181; Ricca, *et al* 2006:5; Ennis & Weir 1985:1) argue that anyone can be trained to teach and evaluate higher order thinking. This requires the evaluators, (teachers) to participate in training in HOTS in order to effectively assess students' essays and answers to questions which evaluate HOTS.

Cosgrove (2009:22) concluded (section 2.10.1) that the success of continuing professional development programmes CPD) are conditional on the teachers continuing to be active learners and supporting their colleagues in developing HOTS, that they in turn apply to teaching HOTS in their classrooms. Training teachers to teach HOTS will lead to student overall achievement gains (Cotton 1991:17).

There are several theories and approaches for embedding HOTS into a school curriculum (see 2.8). The following are deemed most effective (sections 2.8.1; 2.8.2; 2.8.3). The general reasoning approach and scaffolding method involves teaching the HOTS separately from the content area and scaffolding or providing a framework of questions and examples of the HOTS

before applying it to the domain area. The subject specific approach and infusion method involves mastery of a content area before infusing the HOTS. The mixed approach, schemata and cooperative learning methods involve creating mental pictures or schemata that coincide with both the specific HOTS and its application to a domain of knowledge.

Each of these approaches and methods can be used to integrate HOTS into the classroom successfully (section 2.8). They are all pedagogically sound methods that may have different approaches; however what they share is the underlying belief that HOTS must be taught and practiced for them to become skills that students will apply to new situations both in and out of the classroom setting.

The subject specific approach and infusion method for teaching HOTS (section 2.8.2) is the approach and method which is utilised in the literature programme in Israel. There are many advocates of this approach and method. Among them are Norris (1985:5), Wegerif (2002:20), Barzilai and Zohar (2008:51 and Elder and Paul (2010:35). They conclude and this study supports their conclusion that reasoning and learning develop together through the active application of subject specific knowledge. The HOTS are best taught and learned by infusing them into the teaching of content areas where students can deploy them and practice them in a specific context. Once this occurs students will be able to transfer the understanding of the HOTS to other areas.

7.3.2 Summary of key findings in the empirical study

Key findings in the empirical study can be summarised in five comprehensive categories which are discussed in the ensuing sections. Firstly, HOTS must be taught and practiced if students are to be successful in applying them in an EFL setting. Secondly, it is possible and important to assess students' understanding of HOTS. Thirdly, students enjoy the challenge that an EFL literature curriculum which infuses HOTS provides. Fourthly, quality teachers trained and committed to the programme will contribute to the success of their

students acquiring HOTS and finally, HOTS infused in a literature programme improves students' overall writing ability as well as their skill in utilising HOTS in their written formats.

7.3.2.1 HOTS must be taught and practiced to be successfully applied in an EFL setting

The curricular initiative of infusing HOTS in an EFL literature programme in Israel minimally takes two years for high school students to complete. Over that two year period 5 point Bagrut students were exposed to six pieces of literature which included a novel/play, three short stories and two poems. In each of the units students were required to apply HOTS to the analysis questions on the texts and to write two bridging essays for each literature log unit, one for the literature log and one on the summative assessment (sections 3.5.6.1; 3.5.6.2).

The empirical findings reveal that over the two year period these 50 students progressed in their ability to use the HOTS of "making connections" in their bridging essays (section 5.2). Students were introduced to several types of HOTS throughout this programme which were spiralled in subsequent lessons. Exposure to HOTS during the literature programme enabled students to continually practice applying HOTS to their writing. The data collected shows a direct relationship between the continual practicing of HOTS and students' improvement in utilising HOTS. The findings agree with the literature in which several scholars (Pogrow 2004:7; Corich, *et al* 2007:44; Willingham 2007:8; Korkmaz & Karakus 2009:53; Harpaz 2005:142) argue that students must be exposed to HOTS and have the opportunity to practice using them in order for the students to be able to use HOTS.

7.3.2.2 Rubrics are a valid and reliable tool to assess HOTS

Scholars (Wolfe & Stevens 2007:8; Elder & Paul 2007:4) argue that it is necessary to create tools to measure and assess HOTS. There are several

cognitive assessments which have been developed by researchers that include a combination of multiple-choice items, short answer items that ask participants to justify or support their answers and short essay items (section 2.9). Evaluating an essay as a means to determine whether or not the student can display HOTS in his or her writing has the most validity (Cosgrove 2009:19; Paul & Nosich 1993:15; Ennis & Weir 1985:3; King, *et al* 2013:78).

To ensure objectivity in the assessment process a well-defined grading rubric should be designed. Several researchers support the use of a properly designed grading rubric to measure performance criteria (Creswell 2014:174-176; Jacobs & Farrell 2001:7). The rubric has advantages for both the teachers and the students. The teacher is able to get a clear picture of the students' strengths and areas which need improvement. The students are able to use the rubric as a metacognitive tool to monitor and assess their progress as they work to improve their thinking and writing skills (Biber, Nekrasova & Horn 2011:51).

The rubric (appendix E) designed to measure the bridging essay in this study was a Ministry of Education rubric to assess bridging essays with modifications made by the researcher which specifically highlights the HOTS of "making connections".

7.3.2.3 Students enjoy the challenge of an EFL literature curriculum which infuses HOTS

In the qualitative aspect of this research a specific question was asked in the opinionnaire (appendix H) if the students enjoyed reading the literature and to explain their answer (section 5.3.2).The majority of the students who responded stated that they did enjoy reading the literary texts studied in the programme. Answers varied from it caused them to think, improved their English, taught them about other cultures, imparted strong life messages and the material was interesting to them.

Cosgrove (2009:55) showed in his study that “students valued the challenges which critical thinking provides as well as the reward of more deeply understanding the material”. Von Glasersfeld (1987:43) concurs with this conclusion when he states that, “the reward comes from the achievement, from the student’s ability to deeply understand what he has been learning”. Furthermore, Liaw (2007:75-76) reported that after learning HOTS in content-based reading and writing for HOTS in an EFL context, students reported that their confidence and motivation increased in learning and thinking in English and they found that they could use the HOTS in other contexts.

The second question asked the students to name an aspect of the programme which they found challenging and to explain why (section 5.3.1.2ii). Several students felt that the bridging essay in which they had to use the HOTS of “making connections” was challenging as well as explaining the HOTS and literary terms. However, in spite of the challenges a literature programme infused with HOTS presented to the students, the majority found the challenge to be enriching and productive as a means to improve their English skills, expose them to different cultures and to encourage them to think (section 6.2.2.1). These findings are supported in the literature (Pogrow 2004:3; Liaw 2007:76) as well.

7.3.2.4 HOTS infused in an EFL literature programme improves students’ writing

The empirical findings reveal that the curricular initiative of infusing HOTS into a literature programme helps students to become stronger English writers. This was measured in the quantitative study (section 5.2) by calculating the scores of the three markers on two of the categories on the grading rubric, *content, organisation and mechanics* on three sets of essays. The students’ improvement in their overall writing skills with each subsequent essay was steady.

The application of HOTS in the students’ bridging essays also showed improvement over the two year period. Three markers’ scores in three

categories on the rubric, *explanation of the meaning of the new information, application of the HOTS of "making connections" and an example showing the connection between the literary text and the new information*, were calculated and compared from three sets of bridging essays. The combined scores of all markers indicate that students improved in writing the bridging essay utilising a HOTS (section 5.2.4).

After two years the majority of the 50 students were able to write a bridging essay which demonstrated that they had mastered the skill of reading an unfamiliar passage or quotation and making a connection between it and the literary text they had studied in class (Table 5.19). The literature concurs with these findings (Swartz, *et al* 2010:35; Paul 1992:16; Abu Shihab 2007:212; Hobson & Schafermeyer 1994:423-425; Wegerif 2002:20) that infusing HOTS in the curriculum will help students to improve their writing skills and their HOTS in written formats.

7.4 RESEARCH CONCLUSIONS

Research conclusions refer back to the original five questions (section 1.6) asked before this study began. Those questions were the following:

- Are HOTS innate skills or must they be purposefully taught in order for students to learn and to apply them?
- To what extent has 10th and 11th grade EFL Israeli students' ability to apply HOTS to their bridging essays, after completing two years in the English literature programme, been improved?
- How accurately could students demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply them in the areas of reading and writing when answering the opinionnaire questions?
- What were students' opinions of the challenges of learning literature infused with HOTS in an EFL literature programme?

- What guidelines could be provided for pursuing further studies into the efficacy of an EFL literature programme which infuses HOTS?

7.4.1 Research question number one

The first question asked whether HOTS are an innate skill or must they be purposefully taught in order for students to learn and apply. According to the findings on the first essays, very few students were able to apply a HOTS when writing a bridging essay. The mean scores of the students were only 41.52 out of 70 points (section 5.2). It was only after two years in the programme, where students were repeatedly exposed to the HOTS in each of the literature units that they showed an understanding of how to apply the HOTS of “making connections” in a bridging essay.

In addition, on the opinionnaire question number three (section 5.3.2) students were asked if they were able to identify different HOTS and describe one that they had learned during the programme. The majority of students could name a HOTS and describe it using appropriate vocabulary. This displayed an understanding of what the skill entailed and showed that by purposefully teaching these HOTS the students learned them.

Both quantitative and qualitative data showed that the explicit teaching of the HOTS during the literature programme enabled students to learn the HOTS and how to apply them. Although there were a few students who argued that they already knew the HOTS before the programme, the majority were not able to describe, explain and apply HOTS until they had learned and practiced those skills (sections 5.5; 6.2.1.1).

7.4.2 Research question number two

The second question this study intended to answer was to what extent has 10th and 11th grade EFL Israeli students’ ability to apply HOTS to their bridging essays, after completing two years in the English literature programme, been improved? The findings show that students’ mean scores

on the categories (two, three and four) for displaying the ability to apply HOTS in their bridging essays increased from 4l.52 out of 70 points on the first set of bridging essays to 55.35 on the second set of essays and finally to 63.99 out of 70 points on the third set of bridging essays. There was a clear improvement in the mean scores for the majority of students over the two year time period (section 5.2.4.3). This demonstrates that students who are taught HOTS and practice using them will be able to apply them in their writing.

Furthermore, in the qualitative analysis of a sampling of bridging essays the third set of bridging essays revealed that the majority of students had improved in their ability to use the HOTS of “making connections” and they were able to support the connection with a suitable example from the literary text studied in class (sections 5.4.1; 6.2.1.2).

7.4.3 Research question number three

The third research question asked how accurately students could demonstrate an understanding of HOTS by naming them and by providing an example of how they could apply them in the areas of reading and writing when answering the opinionnaire questions.

On questions four on the opinionnaire (section 5.3.2) the students were asked to give an example of a HOTS which they would be able to use in their reading. The answers revealed that the majority of students were able to specify a HOTS that they use or will use in reading a text. In addition, most of those students could explain specifically how they would use HOTS in their reading by supplying an example (section 6.2.2.2).

In question five on the opinionnaire the majority of students were able to explain a HOTS they had learned and describe how they could apply it to their writing (section 5.3.2). Furthermore, they were able to supply an example of how they could apply HOTS to their writing.

7.4.4 Research question number four

The fourth research question asked, what were students' opinions of the challenges of learning literature infused with HOTS in an EFL literature curriculum? Question one on the opinionnaire (section 5.3.2) asked students if they enjoyed reading the literary texts. They were also asked to give a reason for their response. The majority of the students indicated that they enjoyed reading the literature. The texts were challenging but enriching both in terms of improving their English and in exposing them to other cultures as well as encouraging them to think.

Moreover, question two in the opinionnaire asked the students to name an aspect of the literature programme which challenged them. Students named a number of challenging activities within the literature programme; however, they enjoyed the challenge of infusing HOTS into literature and expressing what they learned in writing (section 6.2.2.1).

7.4.5 Research question number five

The fifth research question asked what guidelines could be provided for pursuing further studies into the efficacy of the EFL literature programme which infuses HOTS. A discussion of this question ensues in the following section on recommendations.

7.5 RECOMMENDATIONS

Recommendations emerging from this research have a direct impact on not only the Ministry of Education in Israel but all education ministries, curriculum developers, educators and students who are involved in creating and participating in programmes which foster HOTS as part of their pedagogical goals. The following presents the recommendations which are a result of the findings revealed in this study.

7.5.1 Continue to upgrade and enhance courses for educators on teaching, practicing and assessing HOTS in an EFL setting

A main discussion in the literature on teachers' success in imparting HOTS to their students is the quality of teacher training programmes in this specific area (section 2.7.4). Currently in Israel there is one course available to EFL educators to learn how to present and evaluate the literature programme infused with HOTS.

Several researchers (Alwehaibi 2012:61; Wegerif 2002:20; Willingham 2007:8; Korkmaz & Karakus 2009:53), argue that success in imparting the skills, traits and habits of HOTS is conditional on continuing intensive pedagogic training on infusing HOTS in teacher training courses. The students' examined in this study were taught by experienced EFL teachers who were trained to teach in the literature programme. The teachers had taken the course and one of the teachers taught the literature course to other EFL educators (sections 2.7.4; 2.10.1).

Ministries of education must continue to offer on-going education which focuses on the goals of HOTS programmes. Specifically in Israel, those courses need to reinforce the knowledge and practice of the methods for imparting and assessing HOTS within the literary texts taught in the classroom. In general, courses should be available for new teachers as well as experienced teachers to provide updates, new pedagogical techniques in teaching and evaluating HOTS and to foster what Cosgrove (2009:8) referred to as CPD or a Continuing professional development programme which enables the teachers to improve their ability to teach HOTS.

7.5.2 Develop forums for HOTS

Forums should be created that EFL teachers could join to share ideas, successes and failures on infusing HOTS into their classes. As Cosgrove argues, successful CPD programmes are "ones in which the teachers are

actively engaged in their own learning and in supporting the learning of their colleagues" (Cosgrove 2009:22). A forum allows for educators to have contact with colleagues in other parts of the world who are involved with HOTS infusion programmes. A specific forum for EFL teachers could enhance teaching effectiveness in the classroom as it promotes collaborative work and the sharing of materials that are developed for different levels of learners. These forums would promote building what Costa and Kallick (2007:17) refer to as "building a thought-full environment" in which educators share ideas about teaching HOTS and reinforcing them throughout the curriculum as well as instructional decision for how to activate the young minds of our students. Harpaz (2005:137) refers to this as creating a "community of thinking".

7.5.3 Provide further opportunities in the EFL curriculum to encourage students to recognise and apply HOTS

There should be additional opportunities in the EFL curriculum for students to recognise and apply HOTS. The findings revealed that students were successful in defining and explaining how they could apply HOTS to their reading and writing (section 6.2.2.2). Also, students enjoyed the challenge that infusing HOTS in the curriculum provided and expressing what they learned in writing (section 6.2.2.1).

Furthermore, the majority of the students, who participated in the literature programme infused with HOTS, showed improvement in their overall writing skills in using the HOTS of "making connections" in their bridging essays (sections 6.2.1.2; 5.2.4.2; 6.5.3). Researchers such as Pogrow (2004:7), Abu Shihab (2007:209), Wegerif (2002:20) and Kabilan (2011:1), among others argue that HOTS fosters independent thinkers, readers and writers. This study contributes to this argument. Practicing HOTS improves students' ability to use and transfer the HOTS to reading and writing.

One example of practicing and applying those HOTS to other written formats in Israel is in the current G Bagrut (section 3.5.6) examination which includes writing an essay, usually an opinion on an issue presented. Students could be

taught to recognise that writing an opinion essay is another opportunity to apply one of the HOTS they learned in the EFL literature programme. The HOTS could include problem solving, generating possibilities, cause and effect and compare and contrast, to name a few.

In addition, all of the EFL Bagrut examinations include reading comprehension passages in which students are asked to answer a number of questions after they read. Depending on the difficulty of the level of the passage some of the questions require students to use HOTS in order to arrive at a correct answer. Those HOTS may include, inferring, understanding the sequence of events or cause and effect relationships. These provide further opportunities to practice HOTS and should be incorporated as part of the lessons on HOTS.

This could help students improve upon their overall test scores on the Bagrut examinations because they would recognise that the HOTS they had learned in the literature programme applies to other reading passages which are found in other sections of the EFL Bagrut examination. Pogrow (2004:4-5) states that teaching HOTS produces far better test score results and far better problem solvers. The students in his study working on HOTS achieved across the board higher test results on examinations and on grades on their written work.

7.5.4 Continue to provide interesting and relevant materials for the literature programme

Another recommendation that emerged from the findings in this study is that curricula developers, teachers and education ministries must make a serious commitment to provide varied and interesting materials for students to read in order to motivate them to practice HOTS in their work. The findings revealed that interesting curricular materials which promote understanding of other people and cultures motivate students to learn (section 6.2.2.3). Some of the answers that students provided on their opinionnaire were that they received strong life messages from the literary texts and they enjoyed learning about

other cultures. Endres (1996:176), McPeck (1990:16) and Siegel (1993:168) among others, emphasise the moral imperative for imbedding HOTS in the curriculum. Their argument is that HOTS enable us to empathise with those who are different from us and to have a genuine respect for others.

Also, curricular materials which are interesting enhance students' joy of learning (section 6.4.3). The majority of students in this study stated that they enjoyed reading the literary texts in the programme. Hanscomb, Title and Issn (2011:9) argue that when students are presented with interesting materials that are relevant to their lives they enjoy learning. Richards (2006:25) states that it is important that the content brought to the students is relevant, purposeful, interesting and engaging. According to Hismanoglu (2005:54), literary texts bring cultural enrichment, universality, personal relevance, variety and interest to the classroom.

7.5.5 HOTS should be integrated into the study of literary texts

Literature is a vehicle for learning and practicing HOTS (section 6.4.2). Shen (1997:258) showed in her study that higher order thinking emerges from discussions on the literature studied in class. Abu Shihab (2007:209) argues that when we read we predict, compare and evaluate. Reading involves an interaction between thought and language in which the reader must interact with the text in order to create meaning. Elder and Paul (2010:32) concur with this argument by stating that the critical mind improves reading by reflectively thinking about how it reads and what it reads. This research also shows the success of infusing HOTS into the learning of literature (section 6.2).The study of quality, relevant and varied literary texts enable students to engage in HOTS. Therefore, EFL programmes should encourage the reading of literary texts and the development of HOTS exercises which include discussions and writing using HOTS.

7.5.6 A “bank” of literature units should be created for teachers

Although there are over 500 approved literary texts from which the EFL teachers in Israel may choose, there are only pre-prepared lessons for the texts which are currently on the external literature Bagrut examination (section 3.5.6.2). EFL teachers must prepare the literature unit for the remainder of the texts if they choose to teach them in their classes.

In order to keep the students motivated and interested they must continue to have interesting and relevant materials to read (section 6.4.3). Therefore, the final recommendation is that the Ministry of Education English Inspectorate along with the EFL teachers creates a “bank” of literature units that could be used by teachers all over the country. These units could also be used in other schools outside of Israel by EFL teachers who wanted to teach literary texts that promote HOTS in their programmes. Quality bridging questions, which this study showed improve students’ writing with the HOTS of “making connections” (sections 6.2.1.1; 6.5.3), are a unique writing task which could be incorporated into other EFL programmes that infuse HOTS into literature.

7.6 RECOMMENDATIONS FOR FURTHER RESEARCH

Recommendations for further research include the following:

- Further studies on weaker EFL students’ outcomes in the literature programme. The question needs to be asked, do the weaker EFL students also benefit from a curricular initiative in which HOTS is infused in an EFL literature programme designed for their English level?
- Further studies need to be conducted on ways to continue to improve and update educators’ knowledge and skills in teaching HOTS, especially to the weaker EFL students (three and four point level in Israel).

- Further studies ought to be conducted on the teachers' opinions of the efficacy of the literature programme and whether or not they think that students' English skills and ability to use HOTS improve significantly as a result of this programme.
- Further research should be conducted to discover whether or not students can apply HOTS to other types of expository writing assignments.

7.7 LIMITATIONS OF THE STUDY

The limitations of this study include the following:

- This study was only conducted on EFL five point Bagrut students (highest EFL level in Israel).
- The study included only fifty students from two schools.
- The study focused on bridging essays and one HOTS in writing formats, namely that of "making connections".

Although this study had these three main limitations, the findings can still be generalised to other five point EFL Bagrut students as was discussed in section 4.9. Furthermore, fifty students from two different schools provided a rich sampling of the population of students in the literature programme in the country (section 4.5).

Finally, although the focus was on the bridging essay, which requires students to apply the HOTS of "making connections", this study shows that once a HOTS is understood well it can be applied to written formats. It doesn't matter which HOTS it is. This is revealed in another part of this mixed method research, namely the qualitative study on the opinionnaire questions (section 5.3). Those answers show that the majority of students could explain other HOTS they learned and give specific examples on how they could be applied to both their reading and writing (section 5.3.1.2).

7.8 CONCLUDING REMARKS

This study on *the assessment of higher order thinking skills in a literature based curriculum: challenges and guidelines* reveals the importance of embedding HOTS in EFL curricula and how literary texts naturally lend themselves to the infusion of HOTS. The Ministry of Education English Inspectorate stated that the literature programme infused with HOTS would improve students' writing and thinking skills (section 1.5). That statement needed to be researched and tested in order to prove or disprove its veracity. For example, the researcher read examples of other programmes (section 2.10.4) in which similar claims were made about HOTS programmes that were proven not to be successful in the EFL classroom.

Through the research design of the mixed method approach, the researcher was able to gather quantitative and qualitative data that revealed the progress students made in their writing and in their understanding of HOTS from their participation in the literature programme. The sampling of students in the highest level EFL classes can be generalised to other high level EFL high school students both in and outside of Israel, however it will be necessary to conduct further studies on the effects of this programme on lower level EFL students.

The contributions of this study to the discussion on HOTS are that most students' writing improves within a literature based programme that is designed to teach both the domain subject and HOTS. The findings in both the quantitative analysis of the bridging essays, the qualitative analysis of a rich sampling of those same bridging essays and an opinionnaire, demonstrated that after two years in a curricular initiative designed to teach literature and HOTS, students learned to apply the HOTS to their writing. Another contribution is the discovery that most students appreciate the challenge of learning HOTS in an EFL literature setting; it is both interesting and enjoyable to them.

Finally, this researcher's commitment to infusing HOTS in her teaching of EFL students and educators was confirmed by the findings of this study. The process of researching and writing this dissertation on HOTS in an EFL literature curriculum obligated the researcher to employ many of the HOTS discussed in these chapters. It also helped her to impart to her students and the teachers she mentors the value of teaching and practicing HOTS inside and outside of the classroom. With an overabundance of information available to us in today's world, teachers must prepare themselves and their students to learn, practice and apply HOTS. These skills will help to enable them to become autonomous thinkers who recognise that knowledge does not emanate from authority and that all opinions or preferences are not equally valid. People who practice higher order thinking honour the importance of character and values.

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APPENDIX A: LETTER TO PRINCIPALS

Dear Principal,

I, Karen Guth, am working on a DEd in Curriculum Studies at the University of South Africa (UNISA) College Of Education. My thesis title is, *Assessment of Higher Order Thinking Skills in a Literature Based Curriculum: Challenges and Guidelines*. It is a study on the new literature Bagrut programme. I am requesting permission to conduct this study with students who are in the five point English classes. I will be collecting three essays from student portfolios at the end of their 12th grade year, to review their writing and an opinionaire asking them about their opinions on the new literature bagrut programme.

This study proposes to assess students' higher order thinking skills in the literature matriculation programme. The purpose is to gather information on the results of the new literature programme being implemented in the EFL classes of high school students in Israel. Students will not be asked to write any additional essays for this study since the essays will be collected from the work they have completed in class. In addition, the opinionaire should take only fifteen minutes to complete.

Anonymity and confidentiality will be strictly observed and participation is completely voluntary. Students will be able to, at any time, withdraw their work or opinionnaires from the study without reprisal. An ethical clearance document for this study has been approved by the ethics committee of UNISA.

Please feel free to contact me directly, or my supervisor at UNISA, Professor Marietha Nieman at niemamm@unisa.ac.za.

If you give consent, would you please complete the attached letter and email it back to me.

Thank you,

Karen Guth

karen@guth.us

Phone- 052-379-0975

Appendix VI continued

Permission to do research in Public schools

I, _____, principal of _____ _____ School, hereby give permission to Ms. Karen Guth to do research in the schools as requested.

Signed on this day _____ in _____

Name: _____

Signature: _____

Official school stamp

APPENDIX B: LETTER TO MINISTRY OF EDUCATION INSPECTORATE

Ministry of Education
Jerusalem District

October 31, 2013

Dear Ms. Talshir,

My name is Karen Guth and I am working on a DEd in Curriculum Studies at the University of South Africa (UNISA) College Of Education. This letter is to request permission to complete my research entitled, *Assessment of Higher Order Thinking Skills in a Literature Based Curriculum: Challenges and Guidelines*. It is a study on the new literature Bagrut programme. The students who will participate in this study are the five point students in English. I will be collecting three essays from their literature logs at the end of their 12th grade year to review their writing and request them to answer an opinionaire asking them about their opinions on the new literature bagrut programme. This will be students from two schools, Mekor Chaim and the Ulpana in Rosh Tzurim.

This study proposes to assess students' higher order thinking skills in the literature matriculation programme. The purpose is to gather information on the results of the new literature programme being implemented in the EFL classes of high school students in Israel. Students will not be asked to write any additional essays for this study since the essays will be collected from the work they have completed in class. In addition, the opinionaire should take only fifteen minutes to complete. Once the study has been completed, a copy of the research report and a summary of the research findings will be sent to the two schools involved and to the Department of Education.

Anonymity and confidentiality will be strictly observed and participation is completely voluntary. Students will be able to, at any time, withdraw their work or opinionnaires from the study without reprisal. An ethical clearance document for this study has been approved by the ethics committee of UNISA.

Please feel free to contact me directly if you have any questions or my supervisor at UNISA, Professor Marietha Nieman at niemamm@unisa.ac.za.

If you give consent, would you please complete the attached letter and email it back to me.

Thank you,

Karen Guth
karen@guth.us
Phone- 052-379-0975

Permission to do research in Public schools

Ministry of Education

Jerusalem District

I, _____, in the Ministry of Education, Israel, hereby give permission to Ms. Karen Guth to do research in two schools as requested.

Signed on this day _____ in _____

Name: _____

Signature: _____

APPENDIX C: LETTER REQUESTING PARTICIPATION IN STUDY FROM STUDENTS

Dear Student,

I, Karen Guth, am working on a DEd in Curriculum Studies at the University of South Africa (UNISA) College Of Education. My thesis title is, *Assessment of Higher Order Thinking Skills in a Literature Based Curriculum: Challenges and Guidelines* and it is a study on the new literature Bagrut programme. Those students who will participate in this study are the five point students in English. I will be collecting three essays from your literature logs at the end of your 12th grade year to review your writing and an opinionaire asking you about your opinion on the new literature bagrut programme.

This study proposes to assess students' higher order thinking skills in the literature matriculation programme. The purpose is to gather information on the results of the new literature programme being implemented in the EFL classes of 50 high school students in Israel. You will not be asked to write any additional essays for this study since the essays will be collected from the work you have completed in class. In addition, the opinionaire should take only fifteen minutes to complete and it will give you an opportunity to express your opinion on the new literature programme.

Anonymity and confidentiality will be strictly observed and participation is completely voluntary. You will be able to, at any time, withdraw your work or opinionnaires from the study without reprisal. An ethical clearance document for this study has been approved by the ethics committee of UNISA.

Please feel free to contact me directly, or my supervisor at UNISA, Professor Marietha Nieman at niemamm@unisa.ac.za.

Participation in this study is purely voluntary. The participant may, at any time, ask the researcher to withdraw their essays from the study without any reprisals. Furthermore, the student's information will remain confidential and anonymity will be upheld.

If you are willing to participate in this study, please sign and return the consent form on the following page and return it to my box in the school's office.

Thank you,

Karen Guth

karen@guth.us

Signed letter of Consent

I, _____

(Please print your full name in English) give Karen Guth permission to use my essays and response to the opinionnaire in her research on the new literature programme, for her Doctoral studies in Education. I understand that participation is voluntary and that I may withdraw at any time during the study if I so wish.

Signature_____

Date_____

(Please sign your name in Hebrew or English)

Phone number or e-mail address_____

Karen D. Guth

APPENDIX D: RESEARCH ETHICS CLEARANCE DOCUMENT

UNISA university of south africa

COLLEGE OF EDUCATION RESEARCH ETHICS REVIEW COMMITTEE

07 April 2016

Ref : **2013 NOV/4902-232-6/CLR**
Student : Ms K D Guth
Student Number : 4902-232-6

Dear Ms Guth

Decision: Ethics Approval

Researcher: Ms K D Guth
Tel: +97229309380
Email: karen@guth.us

Supervisor: Prof Nieman
College of Education
Office of Graduate Studies and Research
Tel: 012 429 4587
Email: niemamm@unisa.ac.za

Proposal: Assessment of Higher Order Thinking Skills in a Literature Based Curriculum: Challenges and Guidelines

Qualification: D Ed in Curriculum and Instructional Studies

Thank you for the application for research ethics clearance by the College of Education Research Ethics Review Committee for the above mentioned research. Final approval is granted for the duration of the research.

The application was reviewed in compliance with the UNISA Policy on Research Ethics by the College of Education Research Ethics Review Committee on 14 November 2013.
The proposed research may now commence with the proviso that:

1) *The researcher/s will ensure that the research project adheres to the values and principles expressed in the UNISA Policy on Research Ethics.*
2) *Any adverse circumstance arising in the undertaking of the research project that is relevant to the ethicality of the study, as well as changes in the methodology, should be communicated in writing to the College of Education Ethics Review Committee. An amended application could be requested if there are substantial changes from the existing proposal, especially if those changes affect any of the study-related risks for*

University of South Africa
Preller Street, Muckleneuk Ridge, City of Tshwane
PO Box 392 UNISA 0003 South Africa
Telephone: +27 12 429 3111 Facsimile: +27 12 429 4150
www.unisa.ac.za

the research participants.

3) *The researcher will ensure that the research project adheres to any applicable national legislation, professional codes of conduct, institutional guidelines and scientific standards relevant to the specific field of study.*

Note:

The reference number **2013 NOV/4902-232-6/CLR** *should be clearly indicated on all forms of communication [e.g. Webmail, E-mail messages, letters] with the intended research participants, as well as with the College of Education RERC.*

Kind regards,

Dr M Claassens
CHAIRPERSON: CEDU RERC
mcdtc@netactive.co.za

Prof VI McKay
EXECUTIVE DEAN

APPENDIX E: RUBRIC FOR GRADING BRIDGING WRITTEN FORMATS FOR THIS STUDY

Category 1 **Content and Organization**	Text is well organized Content is easily understood Text is written in pupil's own words	Text is fairly well organized Content is hard to follow Chunks of the task are not written in pupil's own words	Text is poorly organized Content cannot be understood Task is not written in pupil's own words
	20	10	0
Category 2 **Explanation of the meaning of the new information**	Explanation is accurate and relevant	Explanation is partially accurate and relevant	Explanation is neither accurate nor relevant
	20	10	0
Category 3 **Application of the Higher Order Thinking Skill of "Making Connections"**	Answer **clearly** states the connection between the new information and the literary text	The connection between the new information and the literary text is not clearly stated	Answer does not show a connection between the new information and the literary text
	25	12	0
Category 4 **Example provided showing the connection between the literary text and the new information**	Details and examples from the literary text are given to support the answer	Details and examples given to support the answer are insufficient and/or not entirely appropriate	No details or examples are given to support the answer
	25	12	0
Category 5 **Language Use and Mechanics**	Evidence of correct use of some advanced language structures and rich vocabulary Hardly any errors of word order, connectors, pronouns, prepositions Hardly any errors of, spelling, punctuation, capitalization; correct use of paragraphing	Correct use of basic language structures and appropriate vocabulary Occasional errors of tense, word order, connectors, pronouns, prepositions Occasional errors of spelling, punctuation, capitalization, run-ons; limited use of paragraphing	Consistent incorrect use of basic language structures and very limited or inappropriate vocabulary Frequent errors of word order, connectors, pronouns, prepositions Frequent errors of spelling, punctuation, capitalization, run-ons; no paragraphing
	10	5	0

APPENDIX F: MINISTRY OF EDUCATION'S RUBRICS FOR BRIDGING ESSAY

Criteria	Descriptors				
Content	Answer is well organized. All information is relevant and accurate. Answer explicitly states the connection between the new information and the text. Details/examples from the text are given to support the answer.		Answer is fairly well organized Most information is relevant and accurate. The connection between the new information and the text is not clearly stated. Details/examples given to support the answer are insufficient and/or not entirely appropriate.		The answer is poorly organized. No information is relevant or accurate. Answer does not show connection between the new information and the text. No details/ examples are given to support the answer.
	80%		40%		0%
Language	Correct use of basic language structures. Mostly correct use of advanced language structures. Hardly any errors of mechanics (spelling, punctuation).		Mostly correct use of basic language structures. Incorrect or no use of advanced language structures. Some errors of mechanics (spelling, punctuation).		Incorrect use of basic language structures. Many errors of mechanics (spelling, punctuation).
	20%		10%		0%

There is no deduction for answers shorter/longer than recommended length.

APPENDIX G: LIST OF HIGHER ORDER THINKING SKILLS FROM THE MINISTRY OF EDUCATION

Thinking Skills

Comparing and Contrasting

Making Connections

Identifying Parts and Whole

Distinguishing Different Perspectives

Explaining Cause and Effect

Uncovering Motives

Generating Possibilities

Sequencing

Synthesising

Classifying

Predicting

Problem Solving

Applying

Inferring

Explaining Patterns

Evaluating

APPENDIX H: CODING SHEET FOR OPINIONNAIRES

Question 1-

Did you enjoy reading the texts in the Literature Bagrut programme? Give two reasons for your answer-

Yes answers:

1. Interesting material
2. Improved English
3. Learned about other cultures
4. Strong life messages
5. Enjoyed Bridging task
6. Caused me to think

No answers:

7. Material not interesting
8. Material too challenging
9. Too much work

Question 2-

Name one aspect of the literature programme which you found challenging. This could be from either the reading or writing assignments. Explain why it was challenging.

1. Reading and remembering all the pieces
2. Challenging language
3. Bridging – connecting new ideas to the material
4. Post-reading because it is creative writing
5. Writing so much
6. Explaining the HOTS and/or literary terms
7. LOTS - too simplified

Question 3-

After completion of the literature bagrut programme, can you identify different types of HOTS? Briefly describe one that you learned.

1. Yes
2. Yes - already knew them before
3. Named a HOTS and described it properly
    a. Uncovering motives

   b. Predicting
   c. Cause and effect
   d. Compare and contrast
   e. Inferring
   f. Distinguishing different perspectives
4. Named a HOTS and didn't describe it properly

Question 4-

Do you feel that you will be able to use HOTS in reading a text? Give one example.

1. Yes with an example which shows how HOTS could apply to reading a text
   a. Uncovering motives
   b. Inferring
   c. Explaining patterns
   d. Predicting
   e. Making connections
   f. Distinguishing different perspectives
   g. Cause and effect
   h. Evaluating
2. Yes, mentioning the HOTS but not explaining how it could apply to reading a text
3. Yes without an example
4. No

Question 5-

Do you feel that you will be able to use HOTS when writing essays? Give one example.

1. Yes with an example which shows how HOTS could apply to writing essays
   a. Generating possibilities
   b. Making connections
   c. Cause and effect
   d. Compare and contrast
   e. Distinguishing different perspectives
   f. Problem solving
   g. Identifying parts and whole
2. Yes, mentioning the HOTS but not explaining how it could be used in writing an essay
3. Yes without an example
4. No

APPENDIX I: MARKERS' GRADES FOR INDIVIDUAL ESSAYS

Marker A

Student ID	Essay no 1	Essay no 2	Essay no 3
1	25	95	98
2	93	97	97
3	27	87	100
4	90	100	100
5	75	83	95
6	72	87	78
7	57	80	90
8	57	62	85
9	80	70	95
10	79	83	100
11	65	67	100
12	70	53	75
13	82	88	93
14	89	82	95
15	95	84	95
16	90	97	98
17	50	57	83
18	61	88	95
19	15	64	95
20	98	95	100
21	100	98	100
22	77	90	98
23	49	88	98
24	64	65	95
25	25	95	95
26	74	97	95
27	49	67	91
28	49	97	83
29	50	76	80
30	75	95	97
31	72	98	89
32	67	85	95
33	49	81	84

34	69	67	95
35	78	81	100
36	45	89	95
37	40	87	100
38	54	54	80
39	80	25	72
40	67	75	79
41	49	88	80
42	57	72	95
43	53	83	97
44	67	75	78
45	40	93	95
46	75	95	100
47	85	96	78
48	57	98	95
49	17	79	89
50	60	80	94
Average grade:	63.26%	81.76%	91.78%

Marker B

Student ID	Essay no 1	Essay no 2	Essay no 3
1	43	100	100
2	95	98	98
3	37	85	98
4	100	100	100
5	67	80	95
6	75	85	70
7	59	85	91
8	65	64	79
9	82	69	94
10	85	88	98
11	59	62	100
12	64	57	74
13	85	85	95
14	85	85	95
15	87	85	98
16	95	95	98

17	42	55	82
18	65	85	88
19	20	62	93
20	100	90	98
21	98	98	98
22	88	88	98
23	54	80	98
24	55	70	98
25	25	93	90
26	25	93	95
27	59	65	96
28	59	97	87
29	59	67	77
30	85	90	92
31	83	92	85
32	60	82	95
33	59	85	85
34	75	65	97
35	75	88	93
36	40	85	95
37	35	86	85
38	45	54	75
39	75	22	75
40	59	79	78
41	60	82	85
42	55	77	96
43	58	85	95
44	60	73	76
45	30	95	95
46	67	92	98
47	90	93	75
48	50	95	95
49	20	70	85
50	55	85	92
Average grade:	63.36%	80.82%	90.56%

Marker C

Student ID	Essay no 1	Essay no 2	Essay no 3
1	23	92	92
2	82	95	93
3	38	83	98
4	84	93	97
5	80	83	91
6	68	88	80
7	60	83	87
8	73	68	88
9	87	75	94
10	80	83	94
11	71	68	95
12	68	61	78
13	76	81	87
14	95	80	90
15	92	85	91
16	100	97	94
17	59	58	85
18	66	92	89
19	25	63	93
20	90	88	94
21	97	95	95
22	80	86	95
23	54	85	97
24	48	67	95
25	33	90	91
26	73	94	97
27	54	67	93
28	72	95	84
29	43	72	76
30	72	92	90
31	78	94	87
32	79	85	94
33	65	79	87
34	67	67	96
35	72	87	95
36	43	85	98
37	40	93	93
38	47	58	79
39	70	25	73

40	70	80	77
41	53	85	82
42	64	75	97
43	56	84	93
44	65	75	75
45	38	98	94
46	79	92	95
47	83	91	71
48	59	92	93
49	26	76	91
50	67	86	97
Average grade:	65.28%	81.32%	89.8%